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Attorneys for Applicant
DEPARTMENT OF ENVIRONMENTAL SERVICES, CITY AND COUNTY OF HONOLULU

BEFORE THE PLANNING COMMISSION

OF THE CITY AND COUNTY OF HONOLULU

STATE OF HAWAI`I

In the Matter of Application of

DEPARTMENT OF ENVIRONMENTAL SERVICES, CITY AND COUNTY OF HONOLULU

Application to Modify SUP No. 2008/SUP-2 (SP09-403) by Modifying Condition No. 1 of the Planning Commission's Findings of Fact, Conclusions of Law, and Decision and Order, dated June 10, 2019, and (2) Condition No. 5 of the LUC's Findings of Fact, Conclusions of Law, and Decision and Order Approving with Modifications the City and County of Honolulu's Planning Commission's Recommendation to Approve Special Use Permit, certified on November 1, 2019

FILE NOS. 2008/SUP-2
2023/SUP-2

DEPARTMENT OF ENVIRONMENTAL SERVICES, CITY AND COUNTY OF HONOLULU'S LIST OF EXHIBITS; EXHIBITS "A1"- "A18"; CERTIFICATE OF SERVICE

DEPARTMENT OF ENVIRONMENTAL SERVICES,
CITY AND COUNTY OF HONOLULU'S LIST OF EXHIBITS

Comes now Applicant DEPARTMENT OF ENVIRONMENTAL SERVICES, CITY AND COUNTY OF HONOLULU ("ENV"), by and through its undersigned counsel, and hereby submits to the Planning Commission, City and County of Honolulu ("Planning Commission") its List of Exhibits and Exhibits "A1"-"A18", pursuant to the Planning Commission's Amended Notice of Contested Case Hearing, dated July 3, 2023, which provides in part:

> 5. Parties shall exchange exhibits and their list of witnesses on or before July 27, 2023.

The List of Exhibits is a list of exhibits that may be used in support of ENV's case. ENV reserves the right to amend and supplement its List of Exhibits and identify any additional exhibits not expressly identified herein for rebuttal purposes in response to any pleadings, arguments, exhibits, issues, and witnesses identified by any party pursuant to the Rules of the Planning Commission § 2-71(c).

Furthermore, ENV gives notice that it will also use the exhibits previously attached to its Application dated December 22, 2022, which was submitted and filed with the Department of Planning and Permitting, City and County of Honolulu on December 23, 2022. These exhibits were labeled Exhibits "A"-"J". As part of ENV's Application, these Exhibits "A"-"J" will be entered into evidence by the Planning Commission, in accordance with Rules of the Planning Commission § 2-41(d). Therefore, ENV has not relisted them in its attached List of Exhibits.

DATED: Honolulu, Hawaii, July 27, 2023.

Respectfully submitted,

JEFFREY HU
KAMILLA C. K. CHAN
Deputy Corporation Counsel
Attorneys for Applicant
DEPARTMENT OF ENVIRONMENTAL SERVICES, CITY AND COUNTY OF HONOLULU

EXHIBIT NUMBER	DESCRIPTION	PARTY: OBJECTIONS	ADMIT
A1	Fly-over photo #1 of Waimanalo Gulch Sanitary Landfill ("WGSL"), taken September 2022		
A2	Fly-over photo #2 of WGSL, taken September 2022		
A3	Fly-over photo #3 of WGSL, taken September 2022		
A4	Fly-over photo #4 of WGSL, taken September 2022		
A5	Fly-over photo #5 of WGSL, taken September 2022		

EXHIBIT NUMBER	DESCRIPTION	PARTY: OBJECTIONS	ADMIT
A6	State of Hawaii, Department of Health's Solid Waste Management Permit No. LF-0041-14, WGSL, Kapolei, O'ahu, Hawaii, TMK: 9-2-05-0005 and 0006, dated March 3, 2023		
A7	Department of Environmental Services, City and County of Honolulu's 1st Semi-Annual Report for period June 2019 to April 2020.		
A8	Department of Environmental Services, City and County of Honolulu's 2nd Semi-Annual Report for period May 2020 to October 2020.		
A9	Department of Environmental Services, City and County of Honolulu's 3rd Semi-Annual Report for period November 2020 to April 2021.		
A10	Department of Environmental Services, City and County of Honolulu's 4th Semi-Annual Report for period May 2021 to October 2021.		

EXHIBIT NUMBER	DESCRIPTION	PARTY: OBJECTIONS	ADMIT
A11	Department of Environmental Services, City and County of Honolulu's 5th Semi-Annual Report for period November 2021 to April 2022.		
A12	Department of Environmental Services, City and County of Honolulu's 6th Semi-Annual Report for period May 2022 to October 2022.		
A13	Department of Environmental Services, City and County of Honolulu's 7th Semi-Annual Report for period November 2022 to April 2023.		
A14	Full text of Act 73 (2020), taken from the Hawaii State Legislature's website at: https://www.capitol.hawaii.gov/slh/Years/SLH2020/SLH2020_Act73.pdf		
A15	Map depicting Act 73 Restrictions, taken from Appendix B of the Landfill Advisory Committee's Final Report, available at: https://www.honolulu.gov/rep/site/env/envref/envref_docs/OLSS%20and%20LAC%20Final%20Report%2020220627_COMBINED%20r1.pdf		
A16	Figure 4.3 from page 4-8 of the Landfill Advisory Committee's Final Report (Final Landfill Sites (2012 MACLSS and 2017 Assessment Studies))		

EXHIBIT NUMBER	DESCRIPTION	PARTY: OBJECTIONS	ADMIT
A17	Figure 4.7 from page 4-13 of the Landfill Advisory Committee's Final Report (Overview of Potential Landfill Sites)		
A18	Figure 4.8 from page 4-14 of the Landfill Advisory Committee's Final Report (Overview of Potential Landfill Sites with Restrictions)		

Applicant reserves the right to amend its LIST OF EXHIBITS and identify any additional exhibits not expressly identified above for rebuttal purposes in response to any pleadings, arguments, exhibits, issues, and witnesses identified by any party pursuant to the Rules of the Planning Commission Section 2-71(c).

Applicant will also use the exhibits previously attached to its Application dated December 22, 2022, which was submitted and filed with the Department of Planning and Permitting, City and County of Honolulu on December 23, 2022. These exhibits were labeled Exhibits "A"-"J". As part of Applicant's Application/Petition, these Exhibits "A"-"J" will be entered into evidence by the Planning Commission, in accordance with Rules of the Planning Commission § 2-41(d). Therefore, Applicant has not relisted them here.

BEFORE THE PLANNING COMMISSION

OF THE CITY AND COUNTY OF HONOLULU

STATE OF HAWAI`I

In the Matter of Application of DEPARTMENT OF ENVIRONMENTAL SERVICES, CITY AND COUNTY OF HONOLULU Application to Modify SUP No. 2008/SUP-2 (SP09-403) by Modifying Condition No. 1 of the Planning Commission's Findings of Fact, Conclusions of Law, and Decision and Order, dated June 10, 2019, and (2) Condition No. 5 of the LUC's Findings of Fact, Conclusions of Law, and Decision and Order Approving with Modifications the City and County of Honolulu's Planning Commission's Recommendation to Approve Special Use Permit, certified on November 1, 2019	FILE NOS. 2008/SUP-2 2023/SUP-2 CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

I HEREBY CERTIFY THAT A COPY OF THE **DEPARTMENT OF ENVIRONMENTAL SERVICES, CITY AND COUNTY OF HONOLULU'S LIST OF EXHIBITS** was duly served by hand-delivery to the following on the date below, addressed as follows:

DEPARTMENT OF PLANNING AND PERMITTING
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

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and MAILE SHIMABUKURO

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425 Queen Street
Honolulu, Hawaii 96813

Attorneys for
OFFICE OF PLANNING, STATE OF HAWAII

DATED: Honolulu, Hawai'i, July 27, 2023.

DANA M.O. VIOLA
Corporation Counsel

By _____
JEFFREY HU
KAMILLA C. K. CHAN
Deputy Corporation Counsel

22-00494/

EXHIBIT "A1"

EXHIBIT "A2"

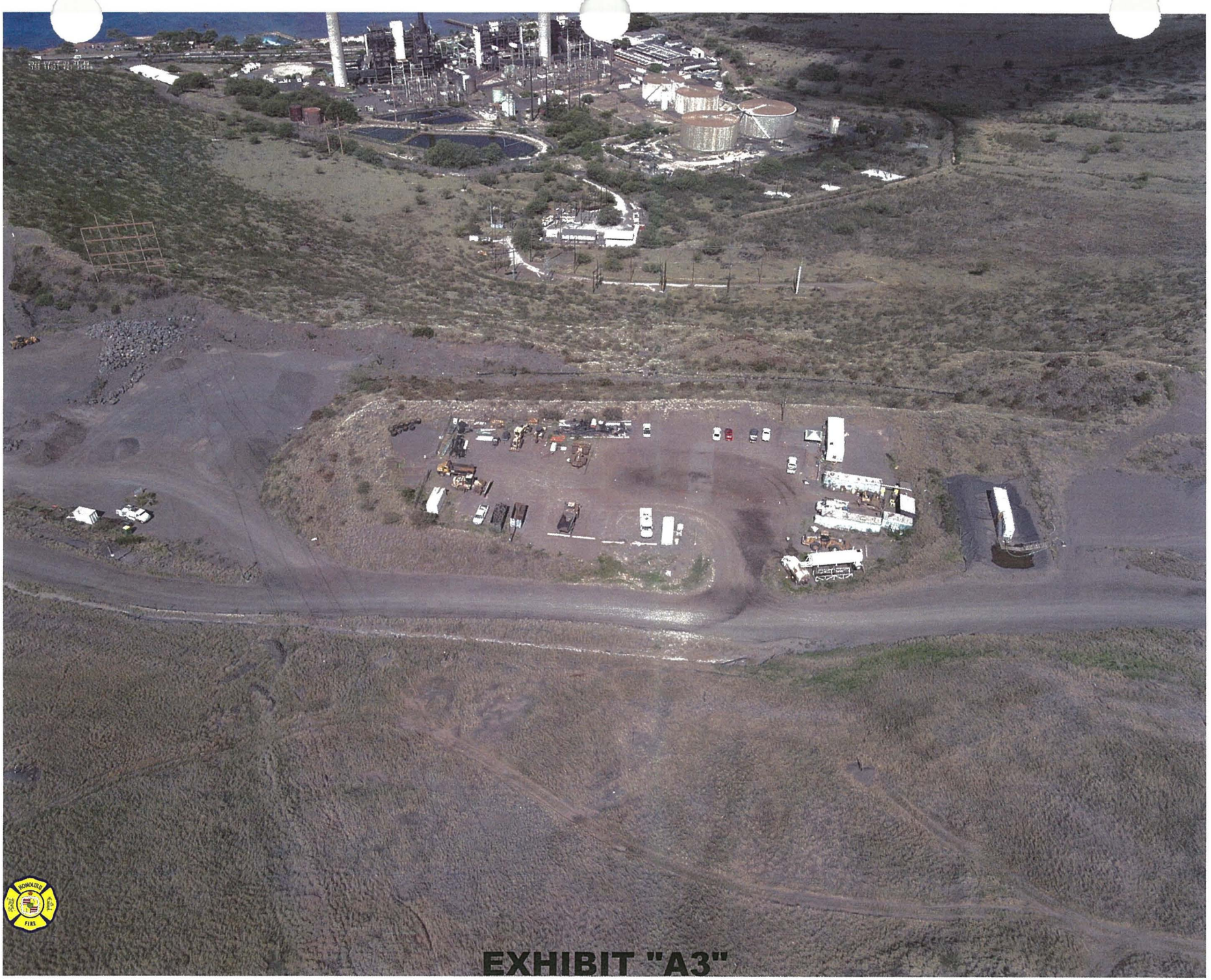

EXHIBIT "A3"

EXHIBIT "A4"

EXHIBIT "A5"

JOSH GREEN, M.D.
GOVERNOR OF HAWAI'I
KE KIA'ĀINA O KA MOKU'ĀINA 'O HAWAI'I

KENNETH S. FINK, MD, MGA, MPH
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
KA 'OIHANA OLAKINO
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

March 3, 2023 S0203GH

CERTIFIED MAIL NO. 7022 0410 0001 7611 8152
RETURN RECEIPT REQUESTED

Roger Babcock, Jr., Ph.D., P.E.
Director
Department of Environmental Services
City and County of Honolulu
1000 Uluohia Street
Kapolei, Hawaii 96707

CERTIFIED MAIL NO. 7020 0410 0001 7611 8138
RETURN RECEIPT REQUESTED

Ms. Tina Alder, District Manager
Waste Management of Hawaii, Inc.
92-460 Farrington Highway
Kapolei, Hawaii 96707

Dear Dr. Babcock and Ms. Alder:

SUBJECT: Solid Waste Management Permit No. LF-0041-14
Waimanalo Gulch Sanitary Landfill, Kapolei, Oahu, Hawaii
TMK: 9-2-05-0005 and 0006

The Department of Health (DOH), Solid and Hazardous Waste Branch (SHWB) received your renewal application for the subject facility on June 2, 2014, modification to the application on May 9, 2019, amendment to the modification on October 10, 2019, preliminary leachate tank proposal on January 31, 2020. The application included a request and plan to temporarily store bales of municipal solid waste during outages at H-Power. This portion of the application was later withdrawn and was not considered during the permit drafting process.

The DOH contracted with Tetra Tech, Inc., to review the permit application and supporting documents. The DOH and Tetra Tech, Inc., provided comments on the application and responses were received on May 13, 2020.

EXHIBIT "A6"

The public notice on the draft permit was published in the Honolulu Star-Advertiser on November 14, 2022. The public notice stated that the DOH was accepting comments on the draft permit, application, and supporting documents for 30 days. During the public comment period from November 14, 2022 to December 14, 2022 the DOH-SHWB did not receive any public comments.

In accordance with Hawaii Revised Statutes, Chapter 342H, and the Hawaii Administrative Rules Title 11, Chapter 58.1, Solid Waste Management Control, the DOH is issuing Solid Waste Management Permit LF-0041-14.

Please note that your permit contains the following sections:

Part I – Standard Conditions
Part II – Special Conditions
- Section A. General Facility Conditions
- Section B. Construction and Maintenance of MSW Landfill Cells and Ash Monofill Cells
- Section C. Acceptance Criteria
- Section D. Provisions Related to the Operation of the MSW Landfill and Ash Monofill
- Section E. Provisions Related to the Operation of the MSW Landfill
- Section F. Provisions Related to the Operation of the Ash Monofill
- Section G. Surface Water Management
- Section H. Perimeter Gas Management
- Section I. Leachate Management/Groundwater and Leachate Monitoring
- Section J. Closure and Post-Closure Requirements
- Section K. Recordkeeping and Reporting Requirements

Prior to finalizing the draft permit, a submission for leachate management using an evaporative cooling setup was submitted to the DOH. Information provided was preliminary and lacked any significant detail, therefore, any conditions regarding this device was not included in the permit. Please be aware that a request for a permit modification is required if you wish to be permitted to construct/install and operate this equipment.

Hawaii Revised Statutes 342H-14 states that unless the submitted documents and other information secured by the DOH from the permittee contain confidential information, such as secret processes or methods of manufacture, they shall be made available for inspection by the public. Please notify the DOH-SHWB when submitting any document if you would like to make a claim of confidentiality. Otherwise, your entire submission will be available for public inspection.

If you have any questions regarding this letter, please contact Mr. Glenn Haae of the Solid and Hazardous Waste Branch at (808) 586-4226.

Sincerely,

JOANNA L. SETO, P.E., CHIEF
Environmental Management Division

Enclosure: Solid Waste Management Permit LF-0041-14

PERMITTEES:		**PERMIT NUMBER:**	LF-0041-14
OWNER:		**DATE OF ISSUE:**	March 3, 2023
City and County of Honolulu		**EXPIRATION DATE:**	March 2, 2028
OPERATOR:		**COUNTY:**	Honolulu
Waste Management of Hawaii		**LATITUDE/LONGITUDE:**	21°4"N/158°7'35"W
92-460 Farrington Highway		**PROJECT:**	Waimanalo Gulch Sanitary Landfill
Kapolei, Hawaii 96707		**Page:**	1 of 61

SOLID WASTE MANAGEMENT PERMIT

This solid waste management permit modification and renewal is issued under the provisions of Chapters 342H, "Solid Waste Pollution" Hawaii Revised Statutes (HRS), and Title 11, Chapter 58.1, "Solid Waste Management Control" Hawaii Administrative Rules (HAR). The above-named permittee(s) is hereby authorized to construct and to operate the facility shown on the application received May 7, 2019, additional submittals received October 7, 2019, and May 13, 2020, and other documents on file with the Department of Health (DOH) as follows:

TO CONSTRUCT AND OPERATE: The Waimanalo Gulch Sanitary Landfill (WGSL) facility. The facility is currently comprised of a 80.6-acre landfill for municipal solid waste (MSW) and a 35.2-acre ash monofil.

The facility may accept MSW and ash for disposal until the date specified in the associated Special Use Permit or until the landfill/monofill reaches its permitted capacity, whichever comes first. The peak daily disposal rate for MSW shall not exceed 3,500 tons per day. The daily disposal rate for ash shall not exceed 1,200 tons per day.

The MSW landfill is comprised of existing cells 1, 2, 3, 4a, 4b, 4c, 5 through 11, and E1 through E7. The ash monofill is comprised of existing cells 1 through 8. Additionally, cells E8 and E9 have been constructed and may be used as either an MSW cell or an ash cell utilizing a DOH- approved separation liner. Existing cells are those that received waste prior to October 9, 1993.

Based on updated waste stream projections, MSW cells E5, E6, and E7 may reach disposal capacity before ash cells E8 and E9 reach their disposal capacity. A proposed filling scenario has been developed where, after reaching specific elevations in cells E8 and E9, a separation liner would be constructed above cell E8 and a portion of cell E9. The liner system would separate the in-place ash from MSW within the permitted footprint of each cell. The total disposal area remains the same at 115.8 acres, with adjusted acreages of 91 acres for MSW and 24.8 acres for the ash monofill. The list below summarizes the background and adjustments:

- Redesigned Area for MSW Disposal Above Current Ash Disposal Area = 10.4 acres. The 10.4 acres includes the 11.0 acres of separation liner and converted sideslopes minus 0.6 acre of overlap between the separation liner and MSW cell E7. The overlap is subtracted since the area below the overlap is already a part of MSW cell E7. Therefore, 10.4 acres of the current ash disposal area in cell E8 and E9 would be converted into new MSW disposal area.
- Redesigned MSW Disposal Area = 91.0 acres. The 91.0 acres include the 80.6 acres of current MSW disposal area plus the 10.4 acres of new MSW disposal area

constructed above portions of cell E8 and cell E9 which are currently areas for disposal of ash.

- Redesigned Ash Disposal Area = 24.8 acres. The 24.8 acres are the 35.2 acres of current ash disposal area minus the 10.4 acres of separation liner constructed above portions of cell E8 and cell E9 which are currently areas for disposal of ash.

The facility may also include a separate solidification and/or separate bulking pit for the acceptance and solidification of liquid wastes or soft wastes, respectively. Liquid wastes would be solidified to meet requirements for landfill disposal and soft wastes would be mixed with bulking material prior to landfill disposal for better compaction. The pits would be constructed in the MSW portions of cells E5, E6, or E7.

The facility also includes components associated with the operation and monitoring of the facility. Components include, but are not limited to, the leachate management system, stormwater management system, perimeter gas monitoring program, groundwater monitoring program, offices, equipment storage and repair areas, and parking. The total acreage of this facility is 200 acres including appurtenant operational uses.

IN ACCORDANCE WITH: The permit modification/renewal application and supporting submissions received June 2014, May 7, 2019, and October 7, 2019. Should there be any discrepancies in the aforementioned documents, HAR 11-58.1 and the conditions of this permit shall take precedence.

LOCATED AT: 92-460 Farrington Highway, Kapolei, Oahu, Hawaii.
TMK Nos. 9-2-05-0005 and 0006

SUBJECT TO: HRS 342H; HAR 11-58.1; Part I - Standard Conditions,
Part II - Special Conditions, and Sections A through K of this permit.

Acceptance of this permit constitutes an acknowledgement and agreement that the holder will comply with all rules, regulations, and orders of the DOH and the conditions precedent to the granting of this permit.

This permit supersedes the Solid Waste Management Permit Number LF-0182-09 issued June 4, 2010, in its entirety.

(For) Director of Health
State of Hawaii

The solid waste management facility is subject to HRS Chapter 342H, *Solid Waste Pollution,* HRS Chapter 342I, *Special Wastes Recycling,* HAR Chapter 11-58.1, *Solid Waste Management Control*, HAR Chapter 11-104.1, *Management and Disposal of Infectious Wastes*, and the following conditions:

PART I - STANDARD CONDITIONS

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee(s) and enforceable, pursuant to the authority of HRS §342H. The DOH will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee(s), its agents, employees, servants, representatives, contractors, or subcontractors. If any term or condition of this permit becomes invalid as a result of a challenge to a portion of this permit, the other terms and conditions of this permit shall not be affected and shall remain valid.

2. This permit:

    a. shall not in any manner affect the title of the premises upon which the facility is or will be located;
    b. does not release the permittee(s) from any liability for any loss due to personal injury or property damage caused by, resulting from, or arising out of the design, installation, construction, operation, maintenance, closure, or post-closure of the facility;
    c. does not release the permittee(s) from compliance with other applicable statutes and regulations of the State of Hawaii or with applicable federal or local laws, regulations, or ordinances;
    d. in no way implies or suggests that the State of Hawaii, or its officers, agents, or employees assumes any liability, directly or indirectly, for any losses due to personal injury or property damage caused by, resulting from, or arising out of the design, construction, operation, or maintenance of the facility; and
    e. shall not constitute nor be construed to be an approval of the design, construction, operation, maintenance, closure, and post-closure of the facility beyond the regulatory requirements mandated by HRS §342H and HAR §11-58.1.

3. Issuance of this permit does not preclude the responsibility of the permittee(s) to obtain any and all necessary approvals and permits from the appropriate federal, state, and local agencies, including zoning clearances, prior to the start of operations. If there are any discrepancies between these permit conditions and

other federal, state, or local laws, regulations, ordinances, or requirements, the permittee(s) shall notify the DOH in writing.

4. Unless the submitted documents and other information secured by the DOH from the permittee(s) contain confidential information, such as secret processes or methods of manufacture, they shall be made available for inspection by the public (HRS §342H-14). The permittee(s) shall be responsible for identifying, in writing, the specific information asserted to be confidential. The DOH shall review the assertion made by the permittee(s) and determine if confidentiality is indeed warranted.

5. This permit is valid only for the specific processes and operations applied for and indicated in the submitted application and additional submissions approved by the DOH. Any unauthorized deviation that affects the facility's design, operations, or procedures, or which could threaten human health and the environment, from the submitted application, drawings, operations manual, and additional submissions or conditions of this permit may constitute grounds for modification, suspension, or revocation of this permit, and/or enforcement action by the DOH. Should there be any discrepancies between the submitted documents and the permit conditions, the permit conditions shall take precedence. A copy of the submitted application and additional submissions shall be maintained at the facility.

6. This permit is non-transferable whether by operation of law or otherwise, either from one location to another, from one solid waste disposal operation to another, or from one person to another without the written approval of the director [HAR §11-58.1-04(e)(2)].

7. This permit shall be kept at or near the construction and operation site for which the permit is issued and shall be available upon request [HAR §11-58.1-04(f)]. A request for a duplicate permit shall be made in writing to the director within ten (10) days after the destruction, loss, or defacement of this permit. A fee of $50.00 shall be charged and submitted with the request [HAR §11-58.1-04(h)(3)].

8. The permittee(s) shall at all times properly operate and maintain the facility and systems of treatment, process, and control (and related appurtenances), as applicable to the facility, that are installed or used by the permittee(s) to achieve compliance with the conditions of this permit, as required by DOH rules. The facility shall be designed, constructed, and equipped in accordance with best practicable technology so as to operate without causing a violation of applicable rules and regulations.

9. Incident Notification Requirements. The permittee(s) shall notify the DOH, in writing or fax, whenever there are incidents such as fire, explosion, or release of regulated material/waste, which could threaten human health or the environment (i.e., air, soil, or surface and subsurface waters). Initial notification may be by phone (586-4226 during regular business hours) or fax (586-7509) and reported within eight (8) hours, whenever possible, and no more than 24 hours. The notification report shall be completed and submitted by a responsible official within three (3) calendar days of the verbal notification and shall include:

    a. name, address, and telephone number of the owner and operator;
    b. name, address, and telephone number of the facility at which the incident occurred;
    c. date, time, and type of incident (i.e., fire, explosion, release, etc.);
    d. name and quantity of material(s) involved;
    e. the extent of injuries, if any;
    f. an assessment of actual or potential hazards to human health or the environment, where this is applicable;
    g. estimated quantity and disposition of recovered and unrecovered material that resulted from the incident;
    h. evaluation of the circumstances that led to the incident;
    i. steps being taken to reduce, eliminate, and prevent recurrence, including an implementation schedule; and
    j. other information or monitoring as required by the DOH

    Notification requirements for releases only apply to releases of a quantity equal or exceeding the reportable quantity listed in HAR §11-451.

10. Noncompliance Notification Requirements. If, for any reason, the permittee(s) does not comply with, or will be unable to comply with, any condition or limitation specified in the permit, the permittee(s) shall notify the DOH orally within 24 hours followed by a written report within three (3) calendar days of the verbal notification. The written report shall be completed and submitted by an Environmental Professional or other responsible official and contain the following information:

    a. description and cause of noncompliance;
    b. period of noncompliance, including exact dates and times; and, if not corrected, the anticipated duration that the noncompliance is expected to continue;
    c. steps that will be taken to correct the area of noncompliance;

d. steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance, including an implementation schedule; and
e. other information or monitoring as required by the DOH.

The permittee(s) may be subject to enforcement action by the DOH, penalties, or revocation of this permit.

The use of fax for notifications is acceptable. Any data transmission or detailed explanations transmitted shall be accompanied by regular mail submittals. Failure to notify in accordance with this requirement may initiate enforcement action.

11. Monitoring and Recordkeeping Requirements. The permittee(s) shall comply with the following monitoring and recordkeeping requirements:

a. Upon request, the permittee(s) shall furnish all records (e.g., transaction reports, disposal receipts, sampling, and testing results) and plans required by the DOH. The retention period for all records shall be a minimum of five (5) years unless otherwise specified in Standard Conditions, Item 11.b; however, there shall be an indefinite retention period for all records associated with any unresolved enforcement action as determined by the DOH.
b. The permittee(s) shall retain at the facility or other location designated by this permit, records of all monitoring information (including all calibration and maintenance records and all original recordings of monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The retention period shall be a minimum of five (5) years, or longer, as may be specified in the Special Conditions, from the date of the sample, measurement, report, or application unless otherwise specified by DOH rule. The retention period shall be for the life of the facility, through closure and post-closure periods, for waste disposal facilities (such as landfills and incinerators).
c. Records of monitoring information, if applicable, shall include:
   - the date, exact location, and time of sampling or measurements;
   - the person responsible for performing the sampling or measurements;
   - the date(s) analyses were performed;
   - the person responsible for performing the analyses;
   - analytical techniques or methods used; and
   - results of such analyses.

12. The permittee(s) shall submit complete and detailed plans and reports on existing solid waste management systems and of any proposed addition to, modification of,

or alteration of any such systems that affect the facility's operations or procedures, or which could threaten human health and the environment and contain the information requested by the DOH in the form prescribed by the DOH. Any submission for permit modification shall be submitted in accordance with Standard Conditions, Item 13. The plans and reports shall be prepared by a competent person acceptable to the DOH, and at the expense of the permittee(s).

13. Should the permittee(s) decide to modify the permit or continue operation of the solid waste facility beyond the expiration date of the permit, the permittee(s) shall submit a complete permit modification or renewal application at least one year prior to the modification or the date of permit expiration. Any submission for permit modification does not affect these permit conditions until such modification becomes final in accordance with HAR §11-58.1-04, or as approved by the DOH.

14. The director may, in accordance with HRS §342H-6, enter and inspect the facility for the purpose of:

    a. investigating an actual or suspected source of solid waste or other pollution;
    b. ascertaining compliance or noncompliance with any rule, regulation, permit condition, or standard promulgated by the DOH; and
    c. conducting tests in connection therewith (including collecting soil, water, air, ash, and any other material or samples).

    The permittee(s), by accepting this permit, specifically agrees to allow authorized DOH personnel, upon presentation of credentials or other documents as may be required by law, access to the premises. The permittee(s) may conduct testing (including collecting soil, water, air, ash, and any other material or samples) simultaneously.

15. The DOH may require the permittee(s) to conduct sampling and testing to determine the degree of pollution, if any, from the solid waste facility (including soil, water, air, ash, and any other materials or samples).

16. When requested by the DOH, the permittee(s) shall within a reasonable time, as specified by the DOH, furnish any information required by law, which is needed to determine compliance with the permit. If the permittee(s) becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the DOH, such facts or information shall be submitted or corrected promptly. Upon the written request of the permittee(s), the deadline for submission of information may be extended, if the DOH determines that reasonable justification exists for the extension.

17. If the DOH determines that the permittee(s) has violated or is violating any provision of HRS §342H, HAR §11-58.1, or these permit conditions, the DOH may pursue enforcement action in accordance with HRS §342H-7, *Enforcement*; §342H-9, *Penalties*; §342H-10, *Administrative Penalties*; §342H-11, *Injunctive and other relief*; or any other pertinent rules.

18. The DOH may, on its own motion, modify, suspend, or revoke a permit if, after affording the applicant a hearing in accordance with HRS 91, the DOH determines that any permit condition, rule, or provision of HRS §342H has been violated or that such is in the public interest [HAR §11-58.1-04(d)].

19. If the governor or the director determines that an imminent peril to the public health and safety is, or will be, caused by the disposal of solid waste or any combination of discharges of other waste that requires immediate action, the governor or the director, without a public hearing, may order the permittee(s) to immediately reduce or stop the disposal, discharge, or process, and may take any and all other actions as may be necessary (HRS §342H-8).

PART II - SPECIAL CONDITIONS

Section A. General Facility Conditions

1. This facility may accept MSW and ash for disposal at the MSW landfill and ash monofill until the date specified in the associated Special Use Permit or until the landfill/monofill reaches its permitted capacity, whichever comes first. The permittee(s) shall construct and operate the facility in accordance with HRS 342H; HAR §11-58.1-1; the application received December 14, 2009, additional submissions received November 3, 2019, and November 25, 2009, and approved subsequent submissions; and the conditions of this permit. Should there be any discrepancies among the aforementioned documents, HRS, HAR, and permit conditions shall take precedence.

2. The maximum height of the landfill and its final grading plan shall not be higher than static and seismic stability of the landfill will allow given a static factor of safety of 1.5, no more than six (6)-inches of deformation, and in conformance with HAR 11-58.1-13(e). The final grades shall be in accordance with Figure 5 of the *Revised Engineering Report for Landfill Expansion*, dated November 24, 2009, prepared by Geosyntec, or approved subsequent submissions. Should there be discrepancies between the approved final grading plan and the aforementioned design standards and regulations, then the design standards and regulations shall take precedence. The permittee(s) shall notify the DOH of any discrepancies.

3. The construction of the West Berm extension and filling of MSW cells was in accordance with Construction Drawings Cells E5 through E8, Revision 3 dated March 16, 2010, prepared by Geosyntec Consultants, Inc. As of August 2015, the West Berm Extension has been constructed to sufficient height (greater than 580 ft msl) to provide a calculated factor of safety in excess of 1.5 for all remaining fill operations. Additional stability analysis shall be performed in the event field conditions are modified or modifications to the waste fill is anticipated.

4. No construction of additional disposal cells or modification of the lateral or vertical extent of disposal cells, shall occur without written approval by the DOH. Any modification requests shall be submitted in accordance with Standard Conditions, Item 13, at least one (1) year prior to commencement of the proposed construction or modification. The construction and design plans shall be prepared and certified by a professional engineer, with at least five (5) years' experience in designing landfills and registered in the State of Hawaii.

5. A permanent sign shall be posted at the facility entrance identifying the facility, the hours and days of operation, and the name and address of the operator, a telephone number, and other pertinent information.

6. The permittee(s) shall operate the facility during the normal operating hours of 7:00a.m. to 4:30p.m., daily, for acceptance and disposal of MSW in the MSW landfill and 24 hours per day for the acceptance and disposal of ash in the ash monofill. In the event that the facility proposes any waste acceptance and disposal outside normal operating hours, the permittee(s) shall notify the DOH, in writing, of this event. The notification shall be provided at least 24 hours in advance of the event. If the event is unanticipated, the permittee(s) shall provide verbal notice of the event within four (4) hours and written notification within eight (8) hours of commencement of the event. A facsimile submission of the notification is acceptable. The written notification shall specify the dates and times affected, the nature and reason for the extended operations, identification of any considerations associated with the extended operations, and controls/procedures that will be implemented to mitigate any adverse impacts of the extended operations.

7. An all-weather access road shall be maintained into and out of the facility site, through the entrance facility and to and from the working area of the landfill.

8. The permittee(s) is responsible for providing measures to control public access in accordance with HAR 11-58.1-15(f). The permittee(s) shall provide and maintain controlled access to the facility in the form of fences and gates along the site perimeter where natural barriers do not provide a means of controlling access.

When natural barriers no longer control access effectively, fences and gates shall be provided to meet the requirements of controlled access. The facility has video monitoring and automated security gate to allow ash deliveries 24-hrs/day.

9. Scavenging at the facility by all parties is prohibited.

10. The facility shall have a Site Manager and Environmental Professional, who shall be knowledgeable of state solid waste laws, regulations, these permit conditions, and the permit application components, including the Site Operations Manual. The permittee(s) shall submit written updates in the event that there are any changes in the responsibilities or identification of the facility Site Manager or Environmental Professional.

11. Landfill operations shall be supervised during operational hours by an individual who has successfully completed a Manager of Landfill Operations training course (or equivalent course approved by the DOH). New Site Managers shall obtain Solid Waste Association of North America certification (or equivalent) within 18 months of hire date. Records of such training shall be placed in the operating record.

12. The permittee(s) shall comply with the financial assurance requirements in HAR 11-58.1-18 for closure of the MSW landfill, closure of the ash monofill, post-closure care, and corrective action, if required.

    a. The permittee(s) shall include a copy of the detailed written estimates in the Annual Operating Report, required in Special Conditions, Section K of this permit.
    b. The permittee(s) shall include documentation of financial assurance in the Annual Operating Report, required by Special Conditions, Section K of this permit.

13. Emergency Action Plan. The permittee(s) shall implement the Emergency Action Plan, as provided in the Site Operations Manual.

    a. The permittee(s) shall provide verbal and written notification of incidents to the DOH, in accordance with Standard Conditions, Item 9 of this permit. Incidents shall also include suspected subsurface fires and be reported based on any of the notification criteria listed in the Emergency Action Plan.
    b. The permittee(s) shall implement Emergency Action Plans for at least the following situations:
        i. Fires (including surface, nearby, incoming waste loads, vehicle/equipment, subsurface, etc.);

ii. Severe storm (2-year, 24-hour storm or greater, or continued significant rainy conditions over duration of 14 days);
iii. Earthquake having a magnitude 5.0 or greater that originates from a source within a 100-kilometer (60-mile) radius from the site, or an earthquake having a magnitude 7.0 or greater originating anywhere within the major Hawaiian Islands;
iv. Hazardous material spills at or above the Reportable Quantity; and
v. Other emergency procedures, and trigger levels, as provided in the Emergency Action Plan.

c. The permittee(s) shall assess, monitor, and maintain the landfill after emergencies that may affect the integrity of the landfill, including, but not limited to, the liner system, leachate collection and control system, surface water management system, and any other affected portions of the landfill. If the acceptance and disposal of waste ceases, the permittee(s) shall submit a written evaluation of whether waste acceptance can resume. The evaluation shall be prepared by a professional engineer registered in the State of Hawaii and the Site Manager, certifying that the landfill and its associated environmental controls are functional, equivalent, or better than required, and that operation of the landfill will not cause a violation of environmental regulations. The evaluation shall also include a description of any findings and corrective actions. The facility may resume acceptance and disposal of waste upon submission of this evaluation to the DOH. The DOH may require additional assessment, monitoring, and corrective actions, as necessary to address the event.

d. In the event of an earthquake having a magnitude 5.0 or greater that originates from a source within a 100-kilometer (60-mile) radius from the site, or an earthquake having a magnitude 7.0 or greater originating anywhere within the major Hawaiian Islands (the triggering event), the facility shall not accept and dispose of waste until a professional engineer registered in the state of Hawaii certifies the integrity and functionality of the landfill and its associated environmental controls, including, but not limited to, the liner system, leachate collection and control system, and surface water management system. In the event of an earthquake having a magnitude between 5.0 and 7.0 (a magnitude less than the triggering event) outside the 100-kilometer (60-mile) radius, the site manager or environmental professional shall make an immediate assessment to determine if the site should be temporarily shut down.
i. The permittee(s) shall submit a written evaluation of whether waste acceptance and disposal can continue after a seismic activity as described above. The written evaluation shall include conclusions

ascertained from the monitoring system program, required by Special Conditions, Section A, Item 13.d.ii. The evaluation shall be prepared by a professional engineer registered in the state of Hawaii and the Site Manager, certifying that the landfill, or portions of the landfill, and its associated environmental controls:

(1) Have not been adversely affected by the earthquake and that continued operation of the landfill will not cause a violation of environmental regulations; or

(2) May have been adversely affected by the earthquake and that waste acceptance should temporarily cease, pending further evaluation and/or correction action.

ii. The permittee(s) shall maintain and monitor the inclinometer system to assess the integrity and functionality of the landfill and its environmental controls, in the event of an earthquake.

(1) Inclinometers were installed for seismic monitoring in the Ash Toe, E-1 and West berms to detect and measure the displacement at the landfill base liner in accordance with a *Workplan for Containment System Monitoring Program*, prepared by Geosyntec, and dated July 2, 2008, and approved subsequent submissions.

(2) The permittee(s) shall comply with the seismic monitoring and reporting requirements in the Workplan for Containment System Monitoring Program.

(3) The monitoring system program shall be considered part of the Site Operations Manual and implemented as part of this permit. If the evaluation in Special Conditions, Section A, Item 13.d.i indicates that the landfill, or its associated environmental controls, may have been adversely affected by the earthquake, the permittee(s) shall propose and implement additional evaluation methods and corrective actions. The proposal shall also include an implementation and reporting schedule. The permittee(s) may resume waste acceptance and disposal in accordance with Special Conditions, Section A, Item 13.c.

14. Alternate Waste Disposal Option. The permittee(s) shall provide a viable alternate waste disposal option in the event of an emergency, earthquake, or any other event that may preclude the acceptance and disposal of waste at the landfill. The alternate waste disposal option shall meet all applicable federal, state, and local laws and regulations. The option shall be available until assessment of the landfill integrity and environmental controls, such as the liner system, and any associated corrective actions are successfully completed, as required by Special Conditions, Section A,

Item 13. The permittee(s) shall submit written updates to the Alternate Waste Disposal Option, dated December 2008, on an annual basis. The updates shall be included in the Annual Operating Report.

Section B. Construction and Maintenance of MSW Landfill Cells and Ash Monofill Cells

1. The permittee(s) shall maintain the integrity of the liner system and leachate collection and control system as designed and constructed, or implement equivalent or better alternative environmental controls, as approved by the DOH.

   a. Existing MSW landfill cells 1, 2, 3, and 4a (partial) (installed prior to 1991).
      i. The bottom liner and side slope liners consist of a liner system comprised of thirty-six inches of clay soil.
      ii. The drainage layer consists of 12 inches of drain rock.

   b. Existing MSW landfill cell 4b, in accordance with Site Redevelopment Plans, prepared by SEC, Donahue, dated June 4, 1992.
      i. The bottom liner consists of a 60-mil HDPE liner on top of 24 inches of compacted clay. On top of the 60-mil HDPE liner is a 16-ounce per square foot geotextile.
      ii. The drainage layer consists of 12 inches of drainage gravel, on which a 10-ounce per square yard geotextile is placed.

   c. Existing MSW landfill cells 4a (partial) and 4c (partial), in accordance with Final Construction Quality Assurance (CQA) Report, prepared by RUST Environment & Infrastructure, Inc., dated August 12, 1996.
      i. The bottom liner consists of a 60-mil HDPE geomembrane on top of a clay liner of $5x10^{-9}$ cm/sec maximum permeability. A 16-ounce per square yard nonwoven geotextile placed over the geomembrane.
      ii. The drainage layer consists of 12 inches minimum drainage rock, on which a 16-ounce per square yard nonwoven geotextile is placed.

   d. Existing MSW landfill cell 4c (partial), in accordance with Final CQA Reports, prepared by RUST Environment & Infrastructure, Inc., dated December 1997.
      i. The bottom liner consists of a 60-mil HDPE geomembrane over a clay liner of $5x10^{-9}$ cm/sec maximum permeability.
      ii. A 16-ounce per square yard nonwoven geotextile over the geomembrane.
      iii. The drainage layer consists of 12 inches of drainage rock, on which a 16-ounce per square yard nonwoven geotextile is placed.

e. Existing MSW landfill cells 5 through 7, in accordance with Quality Assurance Report – Cell 5 (upper) and Cells 6 and 7 (partial), prepared by Harding Lawson Associates, dated July 8, 1994.

f. Existing MSW landfill cells 8 and 9, in accordance with CQA Remainder of MSW Cells 8 and 4c, and MSW cell 9, prepared by RUST Environment & Infrastructure, Inc., dated December 1997; and CQA Report for Subcell E-2D, MSW Cells 8 and 9 Remainder, prepared by Earth Tech, Inc., dated February 2006. Existing MSW landfill cell 10, in accordance with CQA Report for Cell 10, prepared by A-Mehr, Inc., dated January 20, 2000.
   i. The bottom liner consists of a 60-mil HDPE geomembrane on top of a clay liner of $5x10^{-9}$ cm/sec maximum permeability.
   ii. A layer of cushioning 16-ounce per square yard geotextile over the geomembrane.
   iii. The drainage layer consists of a minimum of 12 inches of drainage rock, on which another 16-ounces per square yard geotextile is placed.

g. Existing MSW Cell 11, in accordance with Figure 20, Engineering Report for Grading Plan Modification December 2005, Revision 3, prepared by GeoSyntec Consultants, Inc., dated February 8, 2007.
   i. The bottom liner consists of a 60-mil HDPE geomembrane on top of a clay liner of $5x10^{-9}$ cm/sec maximum permeability.
   ii. A layer of cushioning 16-ounce per square yard geotextile over the geomembrane.
   iii. The drainage layer consists of a minimum of 12 inches of drainage rock, on which another 16-ounces per square yard geotextile is placed.

h. Existing MSW ash monofill cells 1 through 4, in accordance with CQA Reported for Ash Monofill Base Liner Installation, Phase I, dated March 15, 1990.
   i. The bottom liner and side slope liner consist of a composite liner system comprised of a 60-mil HDPE layer on top of thirty-six inches of clay soil with maximum permeability of $1x10^{-7}$ cm/sec.
   ii. The drainage layer consists of a minimum of 0.2-inch geonet with a 16-ounce geotextile protective layer.

i. Existing ash monofill cells 5 through 8, in accordance with CQA Reports, prepared by RUST, dated August 14, 1995 and October 1998. Final CQA

Report Remainder of Ash Cell 7 and Ash Cell 8, prepared by A-Mehr, Inc., dated October 8, 1998.

i. The alternate bottom liner consists of a 60-mil HDPE layer on top of a minimum one pound per square foot geosynthetic clay liner (GCL) of maximum permeability of $5x10^{-9}$ cm/sec.
ii. The drainage layer consists of a minimum of 0.2-inch geonet with a 16-ounce geotextile protective layer.

j. Existing Lateral expansion cells E-1 and E-2, in accordance with CQA Reports prepared by A-Mehr, Inc., dated August 2003 and August 2004. Lateral expansion cell E-3 in accordance with the CQA Report prepared by Earth Tech, Inc., dated May 2007. Details of this system are shown in construction record drawings included in CQA Reports for Cells E-1 (August 2003, prepared by A-Mehr, Inc.), Cell E-2A (August 2004, prepared by A-Mehr, Inc.), Cell E-2B (November 2004, prepared by Earth Tech, Inc.), Cell E-2C (September 2005, prepared by Earth Tech, Inc.), Cell E-2D (February 2006, prepared by Earth Tech, Inc.), and Cell E-3 (May 2007, prepared by Earth Tech, Inc.).

i. The base liner consists of 60-mil single-sided textured HDPE geomembrane on top of an internally reinforced GCL having a maximum permeability of $5x10^{-9}$ cm/sec.
ii. The drainage layer consists of 12 inches of drain rock on top of a 16-ounce per square yard cushion geotextile. On top of the drain rock is a 16-ounce per square yard cushion geotextile.

k. Existing lateral expansion cell E-4, in accordance with the *Project Manual Cell E4 and West Berm (Remainder) Construction*, prepared by GeoSyntec Consultants, Inc., dated December 2006, and specified constructed components identified in the *CQA Report for Cell E4*, dated January 2008.

i. Due to the possible presence of groundwater seeps, the permittee(s) shall maintain the underdrain system consisting of gravel-filled trenches excavated into the subgrade. The subdrains shall be maintained in accordance with a letter report by A-Mehr, Inc., Geologic Investigation and Subdrain Design, dated June 3, 2003.
ii. The base liner consists of 60-mil single-sided textured HDPE geomembrane on top of an internally reinforced GCL having a maximum permeability of $5x\ 10^{-9}$ cm/sec.
iii. The drainage layer consists of 12 inches of 2-inch minus drain rock on top of a 16 oz/yd^2 cushion geotextile. On top of the drain rock is a layer of 16 oz/yd^2 cushion geotextile. The operations layer of 24

inches of 2-inch minus crushed rock was placed above the 16 oz/yd^2 geotextile.

iv. The side slopes are lined and do not exceed a slope of two to one (horizontal: vertical). The liner consists of 60-mil single-sided textured HDPE geomembrane on top of a layer of internally reinforced geosynthetic clay liner. The side slopes are not required to have the gravel drainage layer beyond 10 feet from the bottom of the cell. The operations layer on side slopes consists of a minimum of 24 inches of soil material.

l. Existing lateral expansion cells E-5 through E-9, in accordance with specified constructed components identified in the *CQA Report for Cell E5 (Partial)*, dated December 2010, *CQA Report for Cell E6 (Partial)*, dated October 2010, *CQA Report for Cell E6 (2nd Partial)*, dated June 2011, *CQA Report for Cell E8 (Partial)*, dated October 2011, *CQA Report for Cells E5 (2nd Partial), E6 (3rd Partial), and E7 (Partial)*, dated December 2011, *CQA Report for Cell E8 (2nd Partial)*, dated January 2012, *CQA Report for Cell E5 (3rd Partial)*, dated February 2012, *CQA Report for Cell E8 (3rd Partial)*, dated March 2013, *CQA Report for Cell E5 (4th Partial)*, dated April 2013, *CQA Report for Cell E7 (2nd Partial)*, dated October 2013, *CQA Report for Cells E5 (5th Partial), E6 (4th Partial), and E7 (3rd Partial)*, dated December 2013, *CQA Report for Cells E8 (4th Partial)*, dated December 2013, *CQA Report for Cells E8 (5th Partial) and E9 (Partial)*, dated October 2015, and *CQA Report for Cells E5 (6th Partial), E6 (5th Partial), and E7 (4th Partial)*, dated April 2018.

i. The base liner consists of 60-mil double-sided textured HDPE geomembrane on top of an internally reinforced GCL having a maximum permeability of 5x 10^{-9} cm/sec, on top of 40-mil double-sided textured HDPE geomembrane.

ii. The drainage layer consists of 12 inches of 2-inch minus drain rock on top of a 16 oz/yd^2 cushion geotextile. On top of the drain rock is a layer of 16 oz/yd^2 cushion geotextile. The operations layer of 24 inches of 2-inch minus crushed rock was placed above the 16 oz/yd^2 geotextile.

iii. The side slopes are lined and do not exceed a slope of two to one (horizontal: vertical). The liner consists of 60-mil double-sided textured HDPE geomembrane on top of an internally reinforced GCL having a maximum permeability of 5x 10^{-9} cm/sec, on top of 40-mil double-sided textured HDPE geomembrane. The side slopes are not required to have the gravel drainage layer beyond 10 feet from the bottom of the cell. The operations layer on side slopes consists of a minimum of 24 inches of soil material.

2. Existing lateral expansion cell E8 and E9 in accordance with Geosyntec Consultants, Inc., *Construction Drawings, Cells E5 through E8, Revision 3*, dated March 16, 2010 and *Construction Drawings, Cells E8 (Remainder) and E9*, dated May 2014.

    a. Subdrain was installed in Cell E5 as a continuation of the subdrain installed in preceding cells E1 through E4, in accordance with Note 9 on Sheet 3 of the construction drawings.
    b. Soil cushion under base HDPE geomembrane is 12-inches minimum thickness of on-site soil having a maximum particle diameter of ¼-inch, or as approved by the design engineer.
    c. The base liner consists of a primary 60-mil double-sided textured HDPE geomembrane on top of an internally reinforced GCL, which overlies a 40-mil double-sided textured HDPE geomembrane backing.
    d. The drainage layer consists of minimum 12 inches of gravel (maximum size 1 inch) overlying a 16 oz/yd^2 (minimum) non-woven geotextile cushion. On top of the drainage layer shall be a 10 oz/yd^2 (minimum) non-woven geotextile filter. Over the geotextile filter is a minimum 24 inches of operations layer, consisting of 2-inch minus soil.
    e. The 12-inch gravel layer is required to extend 10 feet vertically up the side slopes. Beyond this elevation on side slopes the filter geotextile need not be included, and the operations layer can be in contact with the cushion geotextile.
    f. This base liner design is used in both the MSW and ash monofill cells.
    g. The operations layer consists of 24-inches of 2-inch minus drain rock having a hydraulic conductivity of at least 1x 10^{-2} cm/sec.
    h. The first layer of solid waste on the bottom and side slopes shall consist of a minimum thickness of 5 to 10 feet of select waste that is screened for the removal of objects having a dimension greater than 24 inches to prevent puncture or displacement damage. As an example, residential waste may be directly placed and spread on the operations layer, visually inspected, and objects greater than 24 inches shall be removed. The thickness of the select waste layer shall be based on the size/weight of the compactor and as defined in the Site Operations Manual.
        i. Only tracked, low ground pressure bulldozers or landfill equipment with rubber wheels shall be used on the operations layer. The select waste layer shall not be compacted and a point load compactor shall not be operated on the select waste layer.
        ii. The permittee(s) shall also comply with the select waste placement procedures provided in the Site Operations Manual.
        iii. The permittee(s) shall document select waste screening and placement. At a minimum, documentation shall include verification by

the Site Manager or Environmental Professional and photo documentation. The permittee(s) shall maintain a copy of select waste documentation at the facility and submit a copy of the documentation to the DOH upon completion of the select waste layer.

i. For the ash monofill Cell E8, the permittee(s) shall conduct an evaluation and potentially add additional separation distance between the ash and base liner by increasing the thickness of the operations layer to ensure liner protection from potential elevated ash temperatures. Hydraulic separation shall be provided between the MSW and ash monofill cells. The modified design shall be provided within 60 days after permit issuance.

3. CONSTRUCTION OF WESTERN SURFACE WATER DRAINAGE SYSTEMS.

a. Western Bypass Diversion: This system is designed to control non-industrial stormwater from the upper Waimanalo Gulch and western areas adjacent to WGSL that does not come in contact with WGSL. This system also conveys non-industrial stormwater flowing from the Northern Drainage System. The diversion structure consists of an open concrete channel fitted with two trash racks on the north end of the site. Stormwater flows from this channel to a 10-feet by 10-feet buried box culvert before transitioning to an underground HOBAS pipe (varies from 104-inches to 78-inches) until the water eventually discharge via the flip bucket, a concrete structure to the stilling basin. The Flip Bucket is located on the south side of the detention basins.

b. Interim Western Drainage System: This system conveys surface run-off to the western side of the landfill through a down-drain and 36-inch pipe conveyance system that discharges to the site's detention basins via an 18-inch OD HDPE downdrain. The upstream end of the system also collects run-off originating from the north and east sides of the landfill flowing in a southerly and westerly direction. The upstream end of the system was expanded upslope along the northwest corner of Cell E9 after the rock cutslope and interim bench grading for Cell E9 was completed in 2015. The Drop Inlets along this system located at DI-16 and DI-17 are inspected for proper flow through the channels.

c. Western Perimeter Access Road Drainage and Transition Basin: The Western Perimeter Access Road drainage system conveys surface runoff from the western cutslope and western perimeter access road area above MSW Cells E6 and E7 via rock rip-rap, corrugated high-density polyethylene pipe (HDPE)-lined ditches, and the conveyance pipe system to a transition basin. The Drop Inlets along this system are located at DI-11, DI-12, DI-13, and D-14 are inspected for proper flow through the channels.

The transition basin is located on the western perimeter of the West Berm and allows for capture and reduction of sediment downstream of a steeply graded segment of the Western Perimeter Access Road, and also collects a portion of the active landfill drainage that bypasses the Interim Western Drainage System. The transition basin outlets to an HDPE pipe with connection to the permanent portion of the Western Drainage System, which discharges to the site detention basin. Construction of the downstream segment of the Western Perimeter Access Road Drainage and Transition Basin system was completed in 2011. The upstream portion of the Western Perimeter Access Road Drainage extending to the Western Diversion Structure has not yet been completed. The portion of the system in the steeply graded segment of the Western Perimeter Access Road will be retrofitted with additional inlets as material is added to this section of the landfill.

4. CONSTRUCTION OF THE LANDFILL SURFACE WATER DRAINAGE SYSTEM.

a. The landfill surface water drainage system consists of the Eastern Surface Water Drainage System, which covers the surface water drainage on the eastern side of the landfill, and the surface water management plan, which is an annual report of the surface drainage configurations in place at that time. Surface drainage configuration shall be reported annually in the Surface Water Management Plan.

b. Eastern Drainage System: The Eastern Drainage System is designed to convey surface water flows from the eastern side of the landfill (both onsite run-off and offsite run-on), including the portion of the lower access road north of the flare station. Construction of this system will be performed in phases. The first phase (Phase I) of the system was completed in the spring of 2016. The Drop Inlets along this system located at DI-1, DI-2, DI-3, DI-4, DI-5, and DI-6 are inspected for proper flow through the channels. Future upstream (northerly) expansions of the drainage system are planned as landfill grades are raised similar to Section 3c above.

c. The permittee(s) shall submit updated Eastern Drainage System design drawings to accommodate stormwater runoff if necessary. The updated drawings shall be submitted at least 60 days prior to construction. Eastern drainage systems are to be constructed while maintaining storm drain capability to handle 24-hour, 25-year storm flows.

d. Southern Drainage System: This system is designed to convey surface water flows (both run-off and run-on) from the landfill entrance road and parking lot area South of the flare station via grouted rock ditches, inlets, strip drains, and culverts. The Drop Inlets within this system located at PL-1, PL-2, and

PL-3 are inspected for proper flow through the channels. Construction of this system was completed in 2011.

e. Interior Landfill Drainage System: This system is designed to convey onsite run-off flows South of the active Cells E6 to E8 via a buried advanced drainage systems pipe beneath the landfill access road and along the periphery of ash cells for discharge into the concrete channel to the detention basin. Construction of this system was completed in 2014. The Drop Inlet of this system located at DI-7 and DI-10 a HDPE Pipe beneath the main haul road is inspected for proper flow through the channels. Temporary features will be in service as MSW and ash placement proceeds in the Cells E5 through E9 area. These features will be modified or taken out of service as landfill grades are raised and landfill areas are closed. Temporary landfill drainage flows conveyed through these features are conveyed to the site detention basins.

f. Area B Closure Drainage System (Figures 3 and 3A): This system is designed to convey onsite run-off surface water flows from the top deck of the Area B Closure via a series of lateral and peripheral ditches in a southerly direction to inlets discharging into a downdrain pipe system. The downdrain pipe system conveys stormwater flows in a southerly downslope direction. The downdrain pipe system discharges into the existing concrete channel just north of the outlet to the detention basin. The Area B Closure Drainage System was completed in the fall of 2014. The Drop Inlets for this system located at DI-8 and DI-9 are inspected for proper flow through the channels.

5. EXTENSION OF MSW 4B SUMP LEACHATE DISCHARGE RISER.

a. The permittee(s) shall maintain the MSW leachate collection sump (4B-cell sump) leachate discharge riser and associated pumps and instrumentation. The sump leachate discharge riser was constructed in accordance with design drawing titled, Sump 4B Riser Replacement, by Sanborn, Head and Associates, Inc., dated July 26, 2007, and approved subsequent submissions. The installation was documented in report prepared by Sanborn, Head & Associates, Inc., titled *Cell 4B Leachate Sump Riser and Pump System Installation Report* dated January 2008.

b. Subsequent extension of the riser as MSW lifts are added shall be accomplished in accordance with the *WORK PLAN: CELL 4B LEACHATE SUMP RISER EXTENSION* included as Attachment 9 of West Management of Hawaii's response letter dated November 2, 2009, which stated that this work plan would be added to the Engineering Report. Operator shall ensure that as lifts are placed, at least ten (10) feet of clearance around the riser is maintained to preclude lateral forces or damage occurring due to operation of

heavy equipment. Gravel shall be placed in the space between the riser and the surrounding MSW lifts and compacted in a manner that will not increase any potential damaging forces on the riser pipe. Immediately following the installation of a riser extension, the permittee(s) shall reestablish an elevation control point as required by Special Conditions, Section I, Item 4. Compliance with this requirement shall be included in the documentation of riser extension work. The Solid Waste Section shall be notified at least one week prior to scheduled commencement of work to add extensions to the riser.

6. PLACEMENT OF MSW OVER A SEPARATOR LINER SYSTEM OVER ASH.

The landfill development plan assumes that the ash cells will be filled concurrently as the MSW cells. However, because of changes in the waste stream, projections by the permittee show that Cells E5, E6, and E7 may reach their MSW disposal capacity before Cells E8 and E9 reach their ash disposal capacity; therefore, a filling scenario has been developed where the ash and the MSW streams can be balanced. To achieve this goal, a filling scenario has been developed where, after reaching specific elevations in ash Cells E8 and E9, a new liner system (i.e., a separation liner) shall be constructed above portions of ash cells E8 and E9. The new liner system would separate the in-place ash from the MSW.

a. The proposed separation liner system is to be constructed as presented in the *Permit Modification Design Report: Placement of MSW Over a Separator Liner System Over Ash*, prepared by Geosyntec, dated May 2019. The liner design (from bottom to top) is:
   i. Prepared subgrade;
   ii. Soil cushion layer;
   iii. 60-mil thick primary HDPE geomembrane (textured on both sides);
   iv. Cushion geotextile;
   v. 1 foot of gravel (100 percent passing the 1.5-inch sieve);
   vi. Filter geotextile; and
   vii. 2 feet of operations layer (maximum size of 2 inches within 6 inches of the geotextile and a maximum of 6 inches in the upper 18 inches).

b. The separation liner shall collect leachate generated within the area where the separation liner is planned. The leachate will flow in the lateral drainage layer toward the south and infiltrate into Cell E7. Once it has infiltrated Cell E7, the leachate will reach the leachate collection layer at the bottom of Cell E7 and reach the existing MSW leachate sump located in Cell E6.

7. CONSTRUCTION OF LEACHATE TANK FARM.

   a. Construction plans for a proposed leachate tank farm and leachate evaporation system, including, if necessary, a sedimentation basin, shall be submitted to the DOH for review and approval prior to construction.

8. CONSTRUCTION OF MAINTENANCE SHOP AREA AND FUEL TANKS.

   a. Construction plans for a proposed maintenance shop area and fuel tank(s) shall be submitted to the DOH for review and approval prior to construction.

9. The permittee(s) shall submit any significant proposed changes affecting the design or structural integrity of the installed liner system or leachate collection system, in writing, at least 180 days prior to commencement of the proposed change. Regular maintenance procedures, such as replacing broken valves with a similar valve, do not require DOH approval. Any proposed changes shall be comparable or improved in its capability to protect human health and the environment. At a minimum, the written proposal shall include:

   a. Identification of affected cells;
   b. Reason for the proposed change;
   c. Engineering design;
   d. Point of Compliance Evaluation;
   e. Implementation schedule; and
   f. Other pertinent information.

   The DOH may also require additional information to evaluate the request. If the proposed changes require a modification to this permit, a modification application shall be submitted in accordance with Standard Conditions, Item 13.

10. In accordance with a Geosyntec design memorandum dated February 18, 2010, regarding the buttress installation for the West Berm, interface friction testing shall be performed for the base and cover liners delineated in a new Section 02800 of the Technical Specifications for Cells E5 through E8. As such, the liner interface strengths for the new MSW and Ash cells shall be verified prior to all base liner and closure cover construction, with direct shear tests conducted under peer-reviewed methods and under the general guidance of ASTM D5321 and D6243. Shear strengths shall meet or exceed the strength parameters used in the stability analyses and shall be approved by a licensed engineer prior to start of construction. These test results shall be documented in the CQA reports for cell construction.

11. Installation of any geosynthetic liner shall be performed by an experienced installer who has installed a minimum of 500,000 square feet of similar type liners or shall be performed under the supervision of the manufacturer. An experienced QA/QC landfill inspector with at least five (5) years of experience in landfill CQA responsible to a professional engineer shall observe liner installation and grade elevations. The permittee(s) shall notify the DOH, in writing, five (5) days prior to any liner installation work.

12. The permittee(s) is responsible for obtaining the services of a registered land surveyor who shall provide a minimum second order of accuracy on: triangulation, traverse, leveling and baseline measurements of the base grade as shown on the approved drawings, leachate lines, liner elevations, and other features used to determine compliance with the approved drawings. Prior to liner placement, the liner contractor and installer shall certify the base grade in writing. This written certification shall be included in the CQA report described in Special Conditions, Section B, Item 15.

13. The permittee(s) shall retain a professional engineer registered in the state of Hawaii for the supervision of the CQA requirements of this project, and upon the completion of all construction elements (west berm buttress, west berm extension, and liner/leachate systems), the engineer shall submit a CQA report to the DOH as to the complete conformity of construction to the plans and specifications as approved. The CQA report is described in Special Conditions, Section B, Item 15.

14. The permittee(s) shall submit a CQA report after completion of each partial installation of the Separator Liner System in cells E8 and E9, as presented in the *Permit Modification Design Report: Placement of MSW over a Separator Liner System Over Ash*, dated May 2019.

15. The permittee(s) shall prepare and submit a CQA report to the DOH.

    a. The CQA report shall be submitted to the DOH at least 30 days prior to proposed placement of the waste in the cell.
    b. A professional engineer, with at least five (5) years of experience in designing landfills and registered in the State of Hawaii shall review the inspections and test records for each sector as certified by the liner manufacturer or manufacturer's representative and the QA/QC engineer. The professional engineer shall also verify that the buttress, berm, bottom liner, and leachate collection system have been installed in accordance with the plans as approved by the DOH.

c. The CQA report for cell construction and/or liner installation shall also include the following, as applicable:
   i. A map of each sector showing panel layouts as installed;
   ii. A letter of certification signed by the QA/QC engineer stating that all weld test results and vacuum or pressure testing of all welded seams were visually observed;
   iii. Liner inspection reports;
   iv. QA/QC testing procedures;
   v. Laboratory's analyses;
   vi. As-built and survey drawings documenting the cell construction, including location and elevation of base grades or grades of waste before separator liner installation, liner system, and leachate collection system;
   vii. Provide documentation to show that panels were properly joined within the cell, as well as with liner systems in adjacent cells;
   viii. Provide documentation and as-built drawings to show supporting berms constructed beneath areas where new liner systems are connected with previously installed liner systems;
   ix. Provide documentation and as-built drawings of anchor trenches and berms (temporary and permanent) located around each cell;
   x. Provide documentation and description of any temporary stormwater control measures implemented;
   xi. Identify any deviations from the construction plan, reason for the deviation, and effects on the stability and integrity of the design. Any deviations shall be comparable or improved in its capability to protect human health and the environment; and
   xii. Written certification by a professional engineer that the buttress, berm, liner system, leachate collection system, and any other associated items were installed in accordance with the approved documents.

d. The CQA report for the leachate tank farm and for the tent structure and fuel tank shall also include the following, as applicable:
   i. As-built and survey drawings documenting the construction, including location and elevation of base grades or grades of waste before separator liner installation, location and elevation of berms or pits grades, location of structures including storage tanks, and leachate collection system (pumps, layout of pipes);
   ii. Provide documentation and description of any temporary stormwater control measures implemented;
   iii. Provide documentation and description of secondary containment for any storage tanks;

iv. Identify any deviations from the construction plan, reason for the deviation, and effects on the stability and integrity of the design. Any deviations shall be comparable or improved in its capability to protect human health and the environment; and

v. Written certification by a professional engineer that the buttress, berm, liner system, leachate collection system, and any other associated items were installed in accordance with the approved documents

16. No solid waste shall be disposed of into any new cell or sector until an experienced professional engineer certifies completion of construction in accordance with approved drawings and the DOH approves the CQA report submitted in accordance with Special Conditions, Section B, Item 12. The permittee(s) shall coordinate the inspection of each new cell or sector by the DOH, with the presence of the CQA engineer and on-site facility operator.

17. The permittee(s) shall maintain the main stability berm at the toe of the landfill in accordance with the construction drawings and sequencing plan titled Ash Area Toe Berm by GeoSyntec Consultants, Inc., Revision 3 dated 13 June 2005, contained in the Engineering Report for Grading Plan Modification December 2005, Revision 3, dated February 8, 2007; as modified by the Construction Quality Assurance Report for Ash Toe Berm and E-1 Berm Construction prepared by Earth Tech, Inc., dated September 2007.

18. The permittee(s) shall maintain the E-1 Berm in accordance with the construction drawings E-1 Area Toe Berm prepared by GeoSyntec dated March 2005, contained in Project Manual, Ash Toe and E-Cell Berms, dated March 2005; as amended by Construction Quality Assurance Report for Ash Toe Berm and E-1 Berm Construction prepared by Earth Tech, Inc., dated September 2007, or approved subsequent submissions.

19. The initial phased construction of the West Berm shall be maintained in accordance with CQA Report for the West Berm Construction (Interim) dated February 2010 and prepared by AECOM Technical Services, Inc.

    a. The construction of the west berm buttress and the extension of the West Berm shall be done in accordance with *Construction Drawings Cells E5 through E8* by Geosyntec Consultants, Inc., Revision 3, dated March 16, 2010. Construction of the buttress shall be accomplished prior to any further extension of the West Berm and addition of MSW into the expansion cells E5 and E6.

b. Extension of the West Berm shall be sequenced with filling of Cells E5 and E6 up to elevation 510 feet, msl in accordance with the Construction Drawings Cells E5 through E8. No additional waste shall be placed until construction drawings for further extension of the West Berm and filling of the expansion cells is reviewed and approved by the DOH. Submission of the sequencing plans shall be provided to the DOH at least 60 days prior to scheduled start of work.

20. The permittee(s) shall submit construction drawings and procedures to install, if necessary, and implement a seismic monitoring system for the expansion cell E9. Documents shall be submitted to the DOH within 90 days of permit issue.

21. Prior to construction of the solidification pit, the permittee(s) shall submit construction drawings for approval by the DOH.

22. The permittee(s) shall install, if necessary, and maintain grade survey control markers to delineate the boundaries and elevations of the MSW landfill areas and ash monofill, in sufficient number to demonstrate compliance with permitted grades.

Section C. Acceptance Criteria

1. The permittee(s) is authorized to accept for disposal, solid wastes, as defined in HAR 11-58.1-03.

2. The permittee(s) shall implement the Waste Acceptance & Hazardous Waste Exclusion Program, as provided in the Site Operations Manual and the following conditions.

   a. The permittee(s) shall screen waste, prevent unacceptable waste from entering the facility, and remove unacceptable waste if it enters the facility.
   b. The permittee(s) shall post a sign on the property that lists unacceptable wastes.
   c. The permittee(s) shall conduct random visual surveillance of mixed commercial loads (not inclusive of loads known to only contain single source-separated materials, such as sludge, ash, fish waste, and auto shredder residue), at least once per day, to spot check for unacceptable wastes. The permittee(s) shall document findings on the Load Check Data Sheet.
   d. The bulldozer operators when at the active workface shall visually screen the contents of each load and remove unacceptable waste.

e. If unacceptable waste is observed, the permittee(s) shall reject the load. If the waste has been unloaded, the permittee(s) shall separate the unacceptable waste, move it away from the active workface, and manage it in accordance with Special Conditions, Section C, Item 3.

f. Operators shall receive training on visual surveillance and unacceptable waste handling procedures set forth in the Site Operations Manual. Training shall be attended at least once per year, or more frequently as needed to ensure compliance with the facility procedures.

g. The permittee(s) shall maintain records of random inspections on the Load Check Data Sheets and personnel training.

h. Unacceptable waste is defined as:
   i. Regulated hazardous waste, as defined in HAR 11-261 through 268;
   ii. Radioactive waste, which shall be managed in accordance with HAR 11-58.1-64;
   iii. Polychlorinated biphenyl (PCB) waste, as defined in 40 CFR Part 761;
   iv. Untreated infectious waste, excluding infectious waste generated within the household, in accordance with HAR 11-58.1-53;
   v. Bulk or noncontainerized liquid waste, except as provided in HAR 11-58.1-15(i);
   vi. Containers holding liquid waste, except as provided in HAR 11-58.1-15(i)(2);
   vii. Commercial loads containing >25% greenwaste and household loads containing > 50% greenwaste, in accordance with HAR 11-58.1-65(b);
   viii. Scrap automobiles, white goods, and whole motor vehicle tires, in accordance with HAR 11-58.1-65(c);
   ix. Lead acid batteries, in accordance with HRS 342I;
   x. Compressed gas tanks; and
   xi. Other unacceptable wastes listed in the Site Operations Manual.

3. Should unacceptable waste be identified at the facility, the permittee(s) shall separate the waste, manage, transport, and recycle/dispose of it in accordance with the Site Operations Manual and applicable laws and rules. Unacceptable waste identified at the facility shall not be disposed of at the facility.

   a. Unacceptable waste shall also be transported from the facility prior to posing a nuisance, health, or safety concern.

   b. Unacceptable waste shall be transported to a permitted solid waste management facility allowed to accept the waste, or out-of-state recycling/ disposal facility.

c. The permittee(s) shall maintain a daily log of unacceptable waste turned away from the facility or separated from disposal, including date, hauler, waste type, estimated quantity, and destination.

d. The permittee(s) shall notify the DOH, in writing, within 24 hours or the next working day of the identification of hazardous waste, in any amount, or PCB waste (above 50 ppm). The notification shall include the date and time of incident, origin of the waste, hauler/generator, description and quantity of waste, actions that will be taken to manage the waste at the site, and actions that will be taken to remove the waste from the premises. The permittee(s) shall also provide written notification, including a copy of the associated manifests, within seven (7) days of removal of the waste from the facility.

4. Radioactive wastes are not accepted by the facility. All incoming loads shall be screened to prevent the acceptance of radioactive wastes. Radioactive wastes shall be managed in accordance with HAR 11-58.1-64. In the event that a radioactive load is identified, the facility shall complete and submit a Radiation Monitoring Report, documenting the date, time, actions taken, and resolution of the event.

5. The permittee(s) shall implement the Special Waste Acceptance Program, as provided in the Site Operations Manual.

a. The permittee(s) shall pre-approve special wastes, prior to acceptance at the facility.

b. The permittee(s) shall maintain written documentation and implement special handling procedures associated with each type of special waste. The procedures shall be based on the physical, chemical, or pertinent characteristics of the special waste.

c. Special waste means any solid waste, which because of its source or physical, chemical, or biological characteristic, require special consideration for its proper processing or disposal, or both. Special waste includes, but is not limited to:

i. Asbestos;

ii. Semi-solid wastes including:

(1) water separation, car and equipment wash wastes;

(2) sewage sludge; and

(3) underground storage tank and other sludge.

iii. Off-specification and outdated products;

iv. Bag house dusts;

v. Inorganic filter cakes;

vi. Treated infectious waste;

vii. Dead animals and offal;

viii. Contaminated Materials including:
  (1) Contaminated soils and debris, including: resins and chemical debris; petroleum and other contaminated soils; and petroleum fuels (i.e., used oil, diesel, jet fuel, gasoline) and debris;
  (2) Sandblast grits;
  (3) Wastes that are toxic in nature, such as insecticides, poisons, or radioactive materials (provided that they are not regulated under another authority such as RCRA Subtitle C, TSCA that requires disposal other than at a permitted MSW landfill); and
  (4) Other solid waste, which may be accepted for disposal such as contaminated industrial/commercial waste and non-TSCA regulated PCB waste (including remediation wastes), provided such materials are not regulated hazardous waste; and

ix. Other special waste listed in the Site Operations Manual.

d. The permittee(s) shall approve Contaminated Materials (as defined in Special Conditions, Section C, Item 5.c.viii), on a case-by-case basis, prior to acceptance at the facility.
  i. The permittee(s) shall implement the Procedures for the Acceptance of Contaminated Material. These procedures shall be implemented for all contaminated materials defined in Special Conditions, Section C, Item 5.c.viii.
  ii. A notice of Contaminated Material Approval shall be submitted to the DOH prior to acceptance at the facility. The notice shall include approval from both the owner and operator of the facility. The use of facsimile submissions is acceptable. The notice shall include: anticipated acceptance date(s), quantity and description of waste, origin of waste, waste profile sheet/approval manifest; if other than disposal the proposed management of contaminated material (use as daily cover or disposal as void space fill), and any special management and handling procedures.

e. All documentation shall be maintained at the facility.

Section D. Provisions Related to the Operation of the MSW Landfill and Ash Monofill

1. The permittee(s) shall implement the Site Operations Manual received December 2009 and approved subsequent revisions. The DOH may periodically require revisions to the Site Operations Manual. The contents of the Site Operations Manual shall address permit requirements and be implemented to ensure compliance. Any significant changes to the Site Operations Manual require approval from the DOH. Depending on the scope of the change, a permit modification may

also be required. If there are discrepancies between the Site Operations Manual and these permit conditions, the permit conditions take precedence.

2. **User Population**. The permittee(s) shall maintain a list of the types of users for operator reference and regulatory review. In the event that the user population, or screening and review process to identify legitimate user changes, the permittee(s) shall submit a written update of such change. The written update shall propose adjustments to the screening and review process, as appropriate, to respond to the changes in the user population.

3. **Air Criteria**. The permittee(s) is responsible for obtaining permits and maintaining compliance with any state or federal Clean Air regulations. Open burning of solid waste, except for debris from emergency cleanup operations, is prohibited. Open burning of debris from emergency cleanup operations shall not commence without prior approval from the DOH.

4. **Climatic Information**. Climate information shall be collected on-site on a daily basis and shall include information on daily rainfall, wind speed and direction, humidity, and temperature. Meteorological data, such as solar radiation and evaporation, may be obtained from a representative weather station. The permittee(s) shall minimize any weather equipment downtimes. In the event that the equipment is not operational, the permittee(s) shall maintain a record of the affected date(s), reason, and actions taken. Data shall be provided to the DOH upon request.

5. **Program for Regular Training**. The permittee(s) shall provide training to landfill operators annually, or more frequently, as needed, to ensure that the operators are familiar with the Site Operations Manual and these permit conditions. Training presentations shall be presented by a Site Manager or Environmental Professional. Records of training shall be maintained.

6. **Queuing**. The permittee(s) shall provide adequate on-site queuing for a minimum of 15 waste delivery vehicles at the scalehouse area. The permittee(s) shall also make reasonable best efforts to prevent waste vehicles from idling on the highway.

7. **Mud and Dust Prevention Program**. The permittee(s) shall provide measures for minimizing the tracking of mud onto public roads, and the generation of dust on site.

    a. The mud prevention measures shall include the installation and maintenance of wet weather pads and access routes constructed of material (such as cold plane material or asphalt/concrete rubble) that will minimize the exposure of excessive muddy conditions. A wet weather deck shall be present to allow

for safe disposal of MSW during wet weather or muddy conditions. The permittee(s) shall maintain a steel rumble strip on the main access road during wet weather and muddy conditions. If mud is tracked offsite, the permittee(s) shall clean up the tracked mud off the property and implement additional mud prevention measures.

b. Recycled aggregate, asphalt and/or concrete used outside the limits of the waste footprint or used to control or direct stormwater shall be uncontaminated and meet the definition of inert fill in HRS 342H-1. No wet weather area for disposal, temporary or otherwise, shall occur outside the waste footprint.

c. The dust prevention measures shall include, but are not limited to, applying water spray to roads and active workface throughout the day, as needed to control dust. The permittee(s) shall also prevent dust from inactive areas by one or more of the following: applying water and/or planting and maintaining vegetation on intermediate cover on completed fill slopes.

d. If measures do not adequately minimize the tracking of mud on to public roads or generation of dust, the permittee(s) shall implement additional mud prevention and dust control measures.

8. **Disease Vector Control**. The permittee(s) shall prevent or control on-site populations of disease vectors.

a. The permittee(s) shall implement the Vector Control Plan, as provided in the Site Operations manual, and these permit conditions.

b. If vectors, or signs or indicators of vector attractants are identified, the permittee(s) shall prepare and implement a vector-specific control/prevention plan to eradicate the vectors and prevent future recurrences.

   i. The plan shall include a more frequent inspection schedule, to ensure the plan was successful in eradicating vectors and preventing future recurrences. The increased schedule shall be implemented for at least three (3) months, or other approved time period, after the vector issue has been resolved.

   ii. The permittee(s) shall submit a copy of the plan to the DOH, as an update to the Site Operations Manual, within 30 days of identifying vectors or vector attractants.

   iii. The permittee(s) shall submit a report, documenting the actions taken at the site and results of such actions. The report shall be submitted within 30 days of completion of the plan.

c. If vector control measures are not adequate, the permittee(s) shall implement additional vector control measures.

9. **Litter Control**. To the extent practical the permittee(s) shall confine litter to the working face area and prevent litter from leaving the facility. The permittee(s) shall implement the Litter Control Plan, as provided in the Site Operations Manual and these conditions. During the course of the working day of operation, all windblown material shall be collected and be properly disposed. Additionally, a sign at the entrance to the facility will notify commercial vehicles that loads must be covered. At a minimum, the collection measures shall include:

   a. The use of litter screens/fences within 100 yards downwind of the active workface (primary fencing) if suitable areas available for fencing.
   b. The use of additional litter screens/fences in secondary control positions.
   c. The presence of a truck clean-out area near the active workface, with litter screens/fences and disposal receptacles for truck clean-out. If the truck clean-out area is within 100 feet of a downwind primary fencing area, additional screens/fences shall only be required if the primary and secondary fencing areas are inadequate.
   d. Cleaning of litter screens/fences (primary, secondary, and truck clean-out area screens/fences) throughout the day. At the end of the operating day, all litter shall be removed from all litter screen/fences.
   e. Additional litter cleanup of all impacted areas in the event of a major windstorm or other incident in which litter escapes the normal litter containment systems.
   f. Documentation of the number of personnel picking up litter, number of bags collected, and maximum wind speed for each day.
   g. If litter control measures are not adequate, the permittee(s) shall implement additional litter control measures.

10. **Temporary Storage**. The following operating procedures for the temporary storage of materials on both the ash monofill and MSW Landfill will ensure that adequate soil cover exists, and that excavation of underlying ash/MSW will not occur during the movement or relocation of any stored materials to/from the storage area, except as provided in Special Conditions, Section D, Item 12.

    a. The storage of materials on the ash monofill, such as daily, intermediate, or final cover soil, slated for use at the ash monofill, will be allowed if revised operational procedures are implemented. Materials such as liner construction materials, concrete, or gravel material to be used in upcoming landfill site improvement projects or the maintenance of access roads, will not be stored on the ash monofill without prior approval from the DOH. Developed or filled areas of the ash monofill will not be used for other activities such as storage of green waste, tires, white goods, or other unacceptable wastes. Any

materials/items being stored on the ash monofill would be for use within the limits of the landfill. The storage area is not to be used for long-term storage of containers or equipment.

b. Storage of materials will only be on areas of the ash monofill and MSW Landfill that have received at least twelve inches (intermediate cover) of soil cover (i.e. no storage at or near the active working face). Verification of adequate and uniform soil cover for purposes of compliance with this operating condition will be met with implementation of cover thickness measurements. Holes will be made at various locations in areas to be utilized for storage to ensure proper thickness. For purposes of cover thickness verification, the storage area includes any loading or off-loading areas. The results of the inspection will be recorded in a log maintained on-site.
   i. Cover thickness verification in the storage area on the ash monofill will be conducted and documented monthly when materials are stored on the monofill, unless significant activity is ongoing then weekly measurement will be conducted.

c. Erosion control BMP's will be instituted to minimize potential for erosion of the stored materials and cover soil around the stored materials. BMP's include maintaining positive drainage in and around the storage area, installation of downgradient perimeter sedimentation control (such as silt fence, wattles, check dams or other devices) and inclusion of this area in the site's routine storm water inspections.

11. The permittee(s) may submit written requests for the temporary storage of other materials or other activities on the MSW landfill and ash monofill. The requests shall be limited to materials intended for use within the waste disposal area of the MSW landfill or ash monofill and activities associated with landfill operations.

    a. The written request shall be submitted at least 14 days prior to the proposed activity. At a minimum, the request shall include provisions to meet or exceed the following requirements:
       i. The volume of material shall not exceed a limit of 30 days capacity and the duration of activities shall not exceed 30 days. If storage/activities exceeds or is anticipated to exceed 30 days, the permittee(s) shall construct temporary berms or implement other measures to prevent erosion of the stored material and allow for proper stormwater flow.
       ii. Stockpiles/activities shall be placed/conducted atop at least 24 inches of intermediate cover material and shall not impede stormwater flow, unless otherwise approved by the DOH. Temporary berms,

containment measures, activity areas, and access to stockpiles/activity areas shall also be placed atop at least 24 inches of intermediate cover material, unless otherwise approved by the DOH.

iii. The permittee(s) shall collect pot hole samples to verify the depth of intermediate cover prior to placement of the material storage stockpiles, temporary berms, or other containment measures and prior to commencement of other activities. Documentation of depth, as well as periodic inspections, shall be provided to the DOH upon request. Periodic inspections shall be performed on a monthly basis during material storage and weekly when significant activity is ongoing.

iv. Material storage stockpiles shall not exceed permit grades if storage is for greater than 30 days, unless a professional engineer certifies that the proposal will not affect the integrity of the landfill. The certification shall include calculations used in the determination.

b. The DOH shall consider the type of material, reason, and duration of the storage activity. The DOH may require additional requirements and controls. Storage of materials or other activities shall not commence without prior written approval from the DOH.

Section E. Provisions Related to the Operation of the MSW Landfill

1. The nominal operating rate of the landfill is 1,400 tons per day. The peak daily disposal rate shall not exceed 3,500 tons per day.

2. The permittee(s) shall provide adequate equipment and personnel to operate the MSW landfill facility, including provisions for back-up personnel and equipment. The following equipment and personnel requirements shall be available at the active workface, unless otherwise approved by the DOH.

   a. At an average operating rate of less than 1,400 tons per day of MSW, the site shall have operationally available (in working condition and with operator) a minimum of one bulldozer, one compactor, one water truck and one traffic controller. The traffic controller and bulldozer operator may be the same person if operating below 1,000 tons per day.

   b. At an operating rate above 1,400 tons per day of MSW, the site shall have operationally available a minimum of 2 bulldozers, 2 compactors, one water truck, and 2 traffic controllers.

3. Operators shall routinely clean the tracks/wheels at the working face using shovel/dry methodology. However, if water is needed, cleaning shall be at the

workface and the amount of water used shall be limited to an amount that would otherwise be used for dust control and not cause infiltration into the waste layer.

4. The permittee(s) shall inform drivers/operators of non-household vehicles that their loads should be covered prior to entering the facility.

5. The permittee(s) shall implement the Asbestos Management and Disposal Plan, dated September 21, 2021, or subsequent approved documents. Compliance with the plan does not preclude compliance with other applicable statutes, regulations, and rules.

    a. A load of Asbestos-Containing Material (ACM) that exceeds one percent organic material by weight must be placed in an active MSW cell. ACM with less than one percent organic material may be placed in an active ash cell or MSW cell. If the organic material in an ACM load cannot be confirmed to be one percent or less, the load may not be placed in any ash cell.
    b. The permittee(s) shall document the quantity, type, location, and depth of asbestos disposed of in either ash or MSW cells. Disposal locations shall be recorded with GPS coordinates. The permittee(s) shall maintain records on the amount and location of asbestos disposal.

6. Loads of treated medical waste shall be placed in a trench/pit excavated within waste that was placed on the same day. Loads of treated medical waste shall be immediately covered with a minimum of two (2) feet of MSW and compacted.

7. The permittee(s) shall implement a Dead Animal and Offal Management Plan, and these permit conditions:

    a. Loads of dead animals and offal shall only be received between the hours of 8:30 a.m. and 2:30 p.m., unless otherwise approved or restricted by the DOH.
    b. Loads of dead animals and offal shall be placed in trench/pit areas, excavated within waste. These loads shall not be placed in areas that have already been covered with intermediate cover.
    c. Loads of dead animals and offal shall be immediately covered with a minimum of two (2) feet of MSW or soil and compacted. The thickness of MSW shall be increased or additional soil shall be used, as needed to minimize odors.
    d. Odor neutralizers and soil cover shall be used, as needed, to minimize odors.

8. The permittee(s) shall implement the Odor Control Program, as provided in the Site Operations Manual, and these permit conditions. The odor neutralization system shall be used as needed to manage odors from the site.

    a. The acceptance of odorous loads shall be scheduled to prevent trucks containing odorous loads from waiting outside the facility, minimize the time the trucks containing odorous loads are waiting in the queue, ensure that a sufficient amount of MSW has been placed to allow creation of a trench/pit area for odorous load disposal, and ensure that sufficient loads of MSW will be placed over the odorous load prior to placement of daily cover.
    b. Odorous loads shall only be received between 8:30 a.m. and 2:30 pm, unless otherwise approved or restricted by the DOH.
    c. Odorous loads shall be placed in trench/pit areas, excavated within waste that was placed on the same day.
    d. The odorous load shall be immediately covered with a minimum of two (2) feet of MSW or soil and compacted. The thickness of MSW shall be increased or additional soil shall be used, as needed to minimize the odor.
    e. Odor neutralizers and soil cover shall be used, as needed to minimize odors.
    f. In the event that the facility receives an odorous load outside of common odorous wastes (such as treated sewage sludge, bulk shipments of off-specification foods, food wastes, dead animals, and offal), the permittee(s) shall notify the DOH prior to acceptance of the load. If an odorous load outside of common odorous waste arrives at the scalehouse without prior notification to the permittee(s), the permittee(s) shall notify the DOH within four (4) hours of its arrival. The notification shall also include any special management and handling procedures that will be implemented.
    g. If odor control measures are not adequate, the permittee(s) shall implement additional odor control measures and the DOH may require that additional measures be implemented.

9. The following controls shall apply to the operations with contaminated materials (as defined in Special Conditions, Section C, Item 5.c.viii):

    a. The permittee(s) shall ensure that contaminated materials are removed from the truck during disposal and excess amounts of contaminated materials are not transported from the site.
    b. The permittee(s) shall only allow the disposal of contaminated materials when the wind speed is below 30 mph at the active workface.
    c. The permittee(s) shall implement dust control measures, such as water sprays and barriers, to adequately control dust during placement of contaminated material. The DOH may require or the permittee(s) may

choose to use additional dust control measures, such as containerization of contaminated soil or dust monitoring during placement. Additional control measures and procedures for dust monitoring, if applicable, shall be specified in the Contaminated Materials Notification.

d. The permittee(s) shall document the special disposal procedures implemented for the contaminated material. Special disposal procedures may include isolation of the material by the use of synthetic or soil barriers or containers.

10. Scrap metal may be removed from the disposal waste stream and recycled.

    a. Scrap metal removal operations shall be performed in accordance with the operations manual and Special Conditions, Section D, Item 11.
    b. Scrap metal removal operations shall be in a designated area, located away from the active workface and shall not be accessible by household users.
    c. The permittee(s) may use screens and magnets to remove scrap metal from the waste stream. The permittee(s) may shear scrap metal for size reduction.
    d. Scrap metal shall be stored in containers with a capacity of no more than 40-cubic yards. A maximum of two (2) 40-cubic yard containers may be stored at the site for scrap metal storage.

11. Contaminated soil with contaminant concentrations below current DOH Environmental Action Levels (EALs) for direct exposure, commercial/industrial land use may be used as:

    a. void space fill within MSW landfill working face; and
    b. daily cover, provided that the daily cover shall not be exposed for more than 24 hours.

12. Contaminated soil with contaminant concentrations greater than current DOH-EALs for unrestricted land use shall not be used as intermediate or final cover.

13. The permittee(s) shall place daily cover on the active MSW workface at the end of each workday, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging.

14. The daily cover material shall be comprised of a minimum of six (6) inches of earthen material or an alternative daily cover (which includes DOH approved tarps) and shall leave no exposed waste. Of primary preference, earthen material shall be soil. If soil is not available, the earthen material may consist of aggregate and shall have an aggregate size less than 2.5 inches and well graded, provided that the

aggregate meets the requirements of Special Conditions, Section E, Item 13. The permittee(s) shall maintain a daily log, including the date, volume, and type of material used as daily cover.

15. The permittee(s) may use tarps as alternative daily cover (ADC). The use of tarps as ADC is subject to the following conditions, regardless of the H-Power waste diversion status, unless otherwise stated:

    a. The use of tarps as ADC is limited to the municipal solid waste workface. Tarps shall not be used on exterior slopes, inactive cells, or areas requiring intermediate cover. Tarps shall not be used on the front cells of the landfill (Cells 1 through 7 and E-1 through E-2) and shall not be visible from Farrington Highway.
    b. The area where ADC was used shall be covered with waste or soil daily/intermediate cover within 24 hours after initial ADC placement.
    c. The use of tarps as ADC may only be performed every other day during H-Power diversions. A minimum of six (6) inches of earthen material shall be used as daily cover when ADC is not used.
    d. The permittee shall limit the footprint of the active workface to an area smaller than the dimensions of the tarp. No more than three (3) tarps, each measuring 30'x100' overlapped at edges, may be used at any given time. There shall be no exposed waste. If exposed waste is present outside the footprint of the tarp, a minimum of six (6) inches of earthen material shall be used to cover any exposed waste.
    e. The permittee shall not use tarps as ADC on days when sustained wind speeds (over a two-minute period) exceed 30 mph at the active workface.
    f. The permittee shall visually inspect the tarps prior to each use, and upon removal from workface the next morning. The tarps shall be repaired or replaced if damage may interfere with the ability to control disease vectors, fires, odors, litter, or if the damage is greater than six (6) inches in length.
    g. In accordance with your solid waste permit, the DOH may revise or terminate the use of tarps as ADC at any time.

Please note that the permit conditions associated with litter (Part II, Special Conditions, Section D, item 9}, the Odor Control Program as provided in the Site Operations Manual (Part II, Special Conditions, Section E, Item 8} and the logging of the type of daily cover used (Section E, Item 14) remain valid during the application, use, and removal of the ADC.

16. The permittee(s) may submit a written proposal to request the use of an ADC, comprised of alternative materials of an alternative thickness (other than at least 6 six inches of earthen material or tarps).

    a. The request shall include ADC specifications, associated operational procedures, an assessment of whether the alternative material and thickness can control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment, and any other pertinent information.
    b. The use of ADC is limited to daily cover use.
    c. The permittee(s) shall obtain DOH approval, in writing, prior to the commencement of the demonstration project.
    d. The use of ADC shall be evaluated in demonstration projects. The demonstration project shall be performed in 6-month increments to determine whether the ADC and its thickness can control disease vectors, fires, odors, nuisance, litter and scavenging without presenting a threat to human health and the environment.
    e. The demonstration period shall include oversight by the DOH. The permittee(s) shall report the performance of the ADC at the end of the demonstration period, including an evaluation of whether the ADC is appropriate for use at the facility, and successful operational procedures.
    f. The permittee(s) shall obtain DOH approval, in writing, prior to commencement of continued use of ADC beyond the demonstration period. The DOH may impose conditions on the use of ADC. Those conditions shall become part of this permit.
    g. The demonstration period or the approved use of an ADC may be rescinded or cancelled by either the DOH or operator at anytime without cause.

17. The permittee(s) shall implement a Daily Cover Monitoring Verification Program as follows:
    a. The permittee(s) shall take digital photos of the active workface at the middle and end of each workday (Sunday through Saturday), from the same perspective, to document the placement and thickness of daily cover. Digital photo records shall be maintained at the facility and the previous week's daily photos (Sunday through Saturday) shall be submitted to the DOH via email by 12:00 noon on the next business day, with cell location information. The permittee(s) and the DOH will work cooperatively to determine the best perspective for the photos.

The permittee(s) shall record the following quantitative items on a daily basis:

a. volume of waste disposed;
b. cell geometry, and
c. volume and type of daily cover used.

18. The permittee(s) shall cover all inactive MSW areas with intermediate cover. Inactive waste areas are areas that do not receive waste MSW within a 30-day period.

19. The permittee(s) shall cover any area receiving vehicular traffic with intermediate cover, regardless of the time period since last receiving waste, except for the tipping floor at the active face where unloading of waste is occurring.

20. Intermediate cover shall be a minimum of 12 inches of earthen material (may include six inches of soil daily cover). Particle size shall be adequate to minimize infiltration and direct stormwater to collection systems.

21. Intermediate cover shall be inspected on a regular basis, at least once per month, and shall be addressed as issues are identified, such as repairs for erosion and cracking. The permittee(s) shall maintain a log of inspections, findings, and corrective actions, if needed. The DOH may require that intermediate slopes be vegetated or measures be taken to control dust.

22. In the event of sustained winds (over a two-minute period), at or exceeding 40 mph at the active workface, the permittee(s) shall stop disposal operations and proceed with placement of daily cover. The permittee(s) shall also cease acceptance and disposal of waste in other high wind conditions, as determined by the foreman and Site Manager or Environmental Professional. The permittee(s) shall maintain a log of such events, including the date, time of shutdown, and associated wind speed.

23. A solidification pit may be necessary at the WGSL for the acceptance and solidification of liquid wastes prior to landfill disposal. Wastes containing free liquids are not permitted for direct landfill disposal. Liquid waste means any solid waste material that is determined to contain "free liquids" as defined by Method 9095 (Paint Filter Liquids Test), as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods." No hazardous waste or waste regulated under the Toxic Substances Control Act shall be received for solidification.

The permittee shall submit solidification pit construction drawings and an operations plan for DOH approval prior to construction of the solidification pit. The DOH may also impose additional permit conditions.

a. Operations at the solidification area shall be in accordance with the permit application and Operations Plan and approved subsequent submissions, unless otherwise specified in the permit conditions.

b. Soil shall meet the following criteria for acceptance for solidification:
   i. TPH gasoline below 2,400 ppm,
   ii. TPH, middle distillates below 500 ppm,
   iii. TPH residual fuels below 5,000 ppm,
   iv. TEQ dioxins below 1,500 ng/kg and cumulative risk less than 104,
   v. Technical chlordane below 77 ppm and passes TCLP, and
   vi. Other contaminant levels below DOH-EALs for commercial/industrial use.

c. The permittee may utilize liquid wastes containing only known sources of petroleum products for solidification, hereinafter referred to as "petroleum-based liquids" as follows:
   i. All incoming petroleum-based liquids shall be tested prior to acceptance at the Facility. Testing may be performed by the generator and shall be based on the origin and contaminants anticipated in the petroleum-based liquids.
   ii. Incoming petroleum-based liquids shall be tested for the following contaminants, or as determined by the site of generation: heavy metals (minimum of RCRA 8 total metals), volatile organic compounds, semi-volatile organic compounds, PCBs, pesticides, herbicides, and TPH.
   iii. Generator knowledge of the incoming petroleum-based liquids may be used as appropriate.
   iv. Records of testing results, origin, and quantity of petroleum-based liquids shall be maintained by the permittee for review by the DOH upon request.

d. The permittee may request the acceptance of liquid waste that does not meet the description for petroleum-based liquids set forth in this section. The request shall be submitted a minimum of 30 calendar days prior to the proposed acceptance date. The DOH may require additional information as deemed necessary to evaluate the request. If the DOH does not respond within 30 days, the request shall be deemed approved. The permittee shall operate in accordance with the acceptance request, maintain records to show compliance with the acceptance request, and implement other conditions that may be required by the DOH. Records of testing results, origin, and quantity of liquids shall be maintained. Any such request shall include, at a minimum, the following information:

i. Description of liquid waste proposed for acceptance;
ii. Generator knowledge and description of environmental contaminants that may be present in the liquid waste, and any analytical data for contaminants of concern;
iii. Documentation of the generator's hazardous waste determination;
iv. Description of operational procedures and controls, if necessary;
v. Identification of solidification area and methods to isolate the liquid waste, if necessary;
vi. Back-end testing procedures for the solidified waste, if necessary; and
vii. Identification of presumed recycling or disposal method, if necessary.

e. The solidification cells shall be located and maintained in accordance with the site plan and Operations Plan. Impermeable surfacing of the solidification pit shall be periodically renewed to maintain its functionality, thickness, and durability per submitted construction drawings.

f. The permittee shall place liquid waste atop an absorbent material within the solidification pit and start incorporating the liquid waste by the end of the workday. The permittee shall process petroleum-based liquids/other liquid wastes by mixing it with absorbent material until solidification is complete and the solidified waste does not contain free liquids as defined by EPA method 9095 (Paint Filter Liquids Test). Liquid waste that does not pass EPA method 9095 (Paint Filter Liquids Test) shall be further solidified. No liquid waste shall be left in the solidification cell upon removal of the solidified waste.

g. The permittee shall minimize the accumulation of standing water in the solidification cells.

24. A bulking pit may be necessary at the WGSL for the acceptance and bulking of soft wastes prior to landfill disposal. Wastes containing free liquids are not permitted for direct landfill disposal nor be accepted for bulking. Liquid waste means any solid waste material that is determined to contain "free liquids" as defined by Method 9095 (Paint Filter Liquids Test), as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods." No hazardous waste or waste regulated under the Toxic Substances Control Act shall be received for bulking.

The permittee shall submit bulking pit construction drawings and an operations plan for DOH approval prior to construction of the bulking pit. The DOH may also impose additional permit conditions.

Section F. Provisions Related to the Operation of the Ash Monofill

1. Only MSW, industrial, or commercial ash may be disposed of in the ash monofill.

    a. Acceptance of industrial/commercial ash shall be in accordance with Special Conditions, Section C, Item 5.
    b. The permittee(s) shall provide written notification at least 24 hours prior to acceptance of industrial/commercial ash. The notification shall include the source of the ash, quantity of ash, physical and chemical characteristics of the ash, proposed dates of receipt, and any special handling/disposal procedures associated with the ash. If the ash is considered a Contaminated Material, the approval and acceptance shall also be in accordance with Special Conditions, Section C, Item 5.d.

2. The ash shall be the result of complete incineration.

3. The ash shall meet the liquid restriction requirements in HAR 11-58.1-15(i).

4. Any ash that is considered a hazardous waste as defined in state hazardous waste laws and regulations shall not be disposed of in the ash monofill.

5. The daily disposal rate for ash shall not exceed 1,200 tons per day.

6. The permittee(s) shall provide adequate equipment and personnel to operate the ash monofill, including provisions for back-up personnel and equipment. The following equipment and personnel requirements shall be met unless otherwise approved by the DOH. The site shall have operationally available a minimum of one bulldozer, and one water truck.

7. The active workface for ash placement shall not exceed 75 feet by 75 feet, or other dimensions approved by the DOH.

8. The permittee(s) shall spread ash within 24 hours of receipt at the facility.

9. The permittee(s) shall cover disposed ash at the end of each operating day, or at more frequent intervals if necessary, to control dust. The daily cover material shall be comprised of a minimum of six inches of earthen material, or an ADC.

    a. The earthen material shall have an aggregate size that is sufficient to prevent the migration of ash.

b. Fresh MSW ash material is acceptable as ADC provided that such usage shall be limited to the active workface where MSW ash is being placed on a daily basis, which will be covered the next day.
c. If alternative cover comprising of fresh ash is not covered within 24 hours, soil daily cover shall be applied.

10. The permittee(s) shall apply at least six (6) inches of soil cover over exposed ash every seven (7) days, or more frequently as required by the DOH.

11. The permittee(s) shall implement a Weekly Cover Monitoring Verification Program. as follows: The permittee(s) shall record the following quantitative items on a weekly basis:

a. The permittee(s) shall take digital photos of the active ash workface on a weekly basis, prior to the placement of the weekly soil cover and after the weekly cover has been placed. Digital photo records shall be maintained at the facility and submitted weekly to the DOH via email by 12:00 noon on the next business day following the day on which weekly cover was placed, with cell location information. Alternatively, these photo records may be submitted to the DOH at the same time as submissions for Special Conditions C, Section 17(a), as long as they are provided, at a minimum, weekly. The permittee(s) and the DOH will work cooperatively to determine the best perspective for the photos.
b. The permittees shall record the following quantitative items on a weekly basis:
   i. volume of waste disposed;
   ii. cell geometry; and
   iii. volume of soil cover used.

12. The permittee(s) shall cover all inactive ash areas with intermediate cover. Inactive areas are areas that do not receive waste (ash) within a 30-day period.

13. The permittee(s) shall cover any area receiving vehicular traffic with intermediate cover, regardless of the time period since last receiving waste.

14. Intermediate cover shall be a minimum of 12 inches of earthen material (may include six (6) inches of soil weekly/daily cover). Contaminated soil with contaminant concentrations greater than current DOH-EALs for unrestricted use shall not be used as intermediate or final cover. Particle size shall be adequate to minimize infiltration and direct stormwater to collection systems.

15. Intermediate cover shall be inspected on a regular basis, at least once per month, and shall be addressed as issues are identified, such as repairs for erosion and cracking. The permittee(s) shall maintain a log of inspections, findings, and corrective actions, if needed. The DOH may require that intermediate slopes be vegetated or measures be taken to control dust.

16. Any ash placed in the ash monofill shall not be subsequently excavated or removed from the monofill without prior notification to and approval by the DOH.

17. In the event of sustained winds (over a two-minute period), at or exceeding 40 mph at the active workface, the permittee(s) shall implement additional measures to adequately control dust from exposed ash. Dust control measures may include, but are not limited to, applying water sprays and soil cover. The permittee(s) shall maintain a log of such events, including the date, dust control measures implemented, and associated wind speed.

18. The permittee(s) shall implement the Asbestos Management and Disposal Plan, as provided in the Site Operations Manual dated September 21, 2021, or subsequent approved documents. Compliance with the plan does not preclude compliance with other applicable statutes, regulations, and rules.

    a. A load of ACM may be placed for disposal in ash monofill portions of Cells E8 or E9 if the profile sheet provided by the generator indicates that the ACM contains less than one percent of organic material by weight. If the load exceeds one percent organic material, it must be placed in the MSW portion of any active cell.
    b. The permittee(s) shall document the quantity, type, location, and depth of asbestos disposed of in either ash or MSW cells. Disposal locations shall be recorded with GPS coordinates. The permittee(s) shall maintain records on the amount and location of asbestos disposal.

Section G. Surface Water Management

1. The permittee(s) shall design, construct, and maintain a surface water run-on and run-off control system in accordance with HAR 11-58.1-15(g), throughout the life of the landfill and through post-closure. At a minimum, the permittee(s) shall construct and maintain the following:

    a. A western bypass channel or offsite surface water conveyance for the upper canyon and western area flows, in accordance with construction drawings titled *Western Surface Water Drainage Project*, dated April 2010 and

prepared by GEI Consultants, Inc., and Western Surface Water Drainage Project – Lower Western Bypass dated June 2011. This conveyance shall be designed to handle 24-hour, 25-year storm flows, and will bypass the landfill and terminate in a stilling basin below the existing sedimentation pond. See Special Conditions, Part II, Section B.3.

b. An on-site surface water management system as follows:
   i. A surface water drainage system of pipe and swale conveyances running along the eastern side of the landfill designed to handle storm flows from a 24-hour, 25-year storm, in accordance with drawings, titled *Eastern Surface Water Drainage Project, 2011 Partial Final Closure*, dated October 2009 and prepared by GEI Consultants, Inc. See Special Conditions, Part II, Section B.4 for description of work.
   ii. The permittee(s) shall submit construction drawings, if necessary, for the Phase II of the Eastern Surface Water drainage system to the DOH at least 60 days prior to scheduled start of construction.
   iii. Both of these drainage systems will flow into the existing sedimentation pond.

c. During any construction of surface water systems, the permittee(s) shall ensure that existing storm water collection and conveyance are sufficient to manage 24-hour, 25-year storm events.

2. Stormwater that comes in contact with solid waste shall be managed and disposed of as leachate.

3. The conditions of this permit do not preclude compliance with any other applicable federal, state, or local requirements including water quality and surface water discharge regulations.

4. The landfill Surface Water Management Plan shall be updated annually and filed with the DOH by September 1 of each year. It shall contain the following information:

   a. Report of an annual inspection of surface water management features and facilities, together with a description of required maintenance and changes, which shall be completed by September 1 of each year;
   b. Updated drawings showing current topography of the landfill, surface water drainage paths and conveyances, and drainage system modifications planned for the next year in response to waste filling;

c. All areas with intermediate cover shall be graded to direct stormwater away from the workface and towards the stormwater collection system;
d. Engineering calculations documenting the capability of the surface water management system to comply with the run-on and run-off requirements listed under Special Conditions, Section G, Item 1. Top deck areas shall have minimum slopes of 2% to 5% to promote drainage. Side-slopes shall not exceed 3 horizontal to 1 vertical to limit erosion. Siltation control fences or equivalent shall be used to maintain silt on-site;
e. Any updates to the Storm Water Pollution Control Plan or Spill Prevention, Control, and Countermeasures Plan prepared pursuant to federal requirements under the Clean Water Act.

Section H. Perimeter Gas Management

1. The permittee(s) shall implement the Perimeter Gas Monitoring Plan dated May 2019 or approved subsequent submissions. The program shall also be conducted in accordance with HAR 11-58.1-15(d) and these permit conditions:

   a. The well shall not be vented prior to measuring the gas concentration.
   b. The permittee(s) shall install additional permanent gas monitoring probes within six (6) months of MSW placement in cell(s) adjacent to planned probe locations and provide documentation of installation within 60 days of completion. Documentation shall include, but is not limited to, geologic logs of each probe location, surveyed locations and elevations of probes, and as-built drawings of each monitoring probe.

2. The permittee(s) shall monitor the concentration of gases, including oxygen, methane, and carbon dioxide. The permittee(s) shall monitor the concentration of gases in facility structures, including temporary structures, and at the property boundary on a quarterly basis, or other frequency as approved by the DOH. If an exceedance is identified, the permittee(s) may conduct a verification monitoring event, provided that the verification monitoring is conducted within one (1) hour of the initially detected exceedance. If exceedances or other anomalous condition is identified, the DOH may increase the frequency of monitoring events.

   a. The concentration of methane gas shall not exceed 25% of the lower explosive limit LEL for methane in facility structures.
   b. The concentration of methane gas shall not exceed the LEL for methane at the facility property boundary.

3. The permittee(s) shall inspect and maintain the gas monitoring probes. In the event that a probe is unusable, the permittee(s) shall repair the probe or install a new probe prior to the next monitoring event.

    a. If the probe is repaired, submit documentation to the DOH indicating the reason for repair, type of repairs completed, and evaluations performed to ensure the probe is acceptable for use.
    b. If the probe is replaced:
        i. The permittee(s) shall update the Perimeter Gas Monitoring Plan to show the new probe location and identification number within 30 days. The update shall also document the reason for replacing the probe.
        ii. The permittee(s) shall submit an installation report for the new probe within 30 days of completion. The installation report shall include the information specified in Special Conditions, Section H, Item 2.
        iii. The permittee(s) shall abandon the unusable probe, and submit associated documentation.

4. The permittee(s) shall ensure that the field meters are factory calibrated in accordance with manufacturer's specifications. The permittee(s) shall also field calibrate the meters prior to each monitoring event. The permittee(s) shall conduct monitoring events only with equipment that has been properly calibrated and maintained.

5. The permittee(s) shall submit a report with results within 45 days of each monitoring event. The results shall include the date and time, gas concentrations by volume, barometric pressure, site conditions, name of personnel conducting the monitoring, description of equipment and calibration results, description of monitoring procedure, and identification of any procedures or observations outside of normal conditions.

6. If verification monitoring performed within one (1) hour of the initial exceedance shows concentrations below the limits in Special Conditions, Section H, Item 2, the permittee(s) shall place results in the operating record and send written notification of the exceedance and verification monitoring results to the DOH within seven (7) days.

7. If combustible gas concentrations exceed the limits in Special Conditions, Section H, Item 2, and verification monitoring is not performed within one (1) hour of the initial exceedance or verification monitoring confirms the initial exceedance, the permittee(s) shall perform the following.

a. Immediately take all necessary steps to ensure protection of human health.
b. Immediately notify the DOH of the exceedance.
c. Within three (3) days of detection, place in the operating record and submit to the DOH, the type of gas, gas levels detected and a description of the steps taken to protect human health.
d. Within 60 days of detection, prepare and implement a remediation plan for the combustible gas releases, place a copy of the plan in the operating record, provide a copy of the plan to the DOH, and notify the DOH that the plan has been implemented.
e. Within 30 days after the remediation plan has been completed, submit a report to the DOH documenting the actions taken, additional monitoring results, and plans to prevent future recurrences.
f. The DOH may modify the reporting and implementation schedule, as necessary to protect human health and the environment.

Section I. Leachate Management/Groundwater and Leachate Monitoring

Leachate Management

1. The permittee(s) shall implement the Updated Groundwater and Leachate Management Plan dated April 2018 or approved subsequent submissions. The permittee(s) shall provide an updated Leachate Management Plan within 60 days of completed construction of additional sumps. The updated plan shall specify compliance levels associated with each new sump and reference as-built drawings and surveyed elevations.

2. The permittee(s) shall manage any storm water that comes in contact with solid waste as leachate.

3. The permittee(s) shall manage leachate to prevent any entry into the stormwater collection system and any contact with the public.

4. The permittee(s) shall maintain an elevation control point at the top of casing or other monument in the immediate vicinity of the sump, for the measurement of leachate in each sump. The elevation control point shall be surveyed on an annual basis and clearly marked. The permittee(s) shall also maintain a monument, showing benchmark elevation, located in a position off the landfill.

5. The permittee(s) shall remove leachate from the landfill via each of the leachate sumps, in a manner that maintains a maximum depth of 30 centimeters (12 inches)

of leachate above any part of the liner in the cell, outside the sump area. The leachate sump compliance depths are as follows:

a. Ash Sump: 88.1 feet above msl, per Leachate Management Plan. The compliance level of leachate in the sump shall not exceed 83.1 inches.

b. E1 Sump: 227.1 feet above msl (sump base at 223.1 ft above msl and sump depth is 3 feet), per Leachate Management Plan. The compliance level of leachate in the sump shall not exceed 43.75 inches.

c. 4B Sump: 124.9 feet above msl (sump base at 120.9 feet msl and sump depth estimated at 3 feet), per Topographic Survey Map, Ash Cell 4 and MSW 4B, prepared by Park Engineering, dated May 19, 2006, which is referenced on Sump 4B Riser Replacement drawing by Sanborn, Head & Associates revision dated July 26, 2007. The compliance level of leachate in the sump shall not exceed 42 inches.

d. E6 Sump: 389.60 feet above msl, with sump depth of approximately 3 feet, per Sheet 8 of the *Construction Drawings Cells E5 through E8* dated February 10, 2010 and prepared by Geosyntec Consultants, Inc. The compliance elevation may be modified based on as-built drawings of the sump, and as accepted by the DOH. The compliance level of leachate in the sump shall not exceed 48.4 inches.

e. E8 Sump: 520.18 feet above msl, with sump depth of approximately 3.6 feet, per Drawing 1 Ash Monofill Cell E8 (Partial) Limits of Encapsulated Liner System and Liner Subgrade Topography. The compliance level of leachate in the sump shall not exceed 48.4 inches.

6. The permittee(s) shall maintain usable access to all groundwater monitoring wells and leachate manholes/sumps shown in the Updated Groundwater and Leachate Monitoring Plan dated April 2018 and approved subsequent submissions.

7. The permittee(s) shall maintain the integrity of the monitoring wells and sumps, and protect them from damage, destruction, or vandalism. If repairs or replacement is necessary to ensure proper management and monitoring, then the permittee(s) shall design and construct the necessary repairs and/or replacements.

   a. Should any of these wells/manholes become damaged, destroyed, or vandalized, the permittee(s) shall notify the DOH immediately.

The notification shall include pertinent information as to the cause of the destruction, description of measures to replace and/or repairs of the monitoring station/manhole, and actions taken to prevent the recurrence of such problems in the future.

b. If a new well/manhole will be constructed or repaired, submit a construction plan to the DOH prior to commencement of construction. At a minimum, the plan shall include the proposed well location, rationale for the location, well design, and installation procedures. The permittee(s) shall implement the repair/construction upon DOH approval.

c. A Well/Sump Completion Report shall be sent to the DOH within 30 days of any new groundwater well/leachate sump construction. At a minimum, the report shall include geologic logs, surveyed location, and elevation of the well, and as-built drawings.

8. Leachate Storage, Transport, and Removal

a. The permittee(s) shall use an automated pumping system to pump leachate to on-site storage tank(s) or directly to the wastewater treatment and disposal facility via the sewer system to comply with the leachate sump compliance depths in Special Conditions, Section I, Item 5. The automated systems shall include an alarm system to alert the permittee(s) to anomalous conditions in the pump or piping system.

b. The permittee(s) shall transport leachate from the storage tank(s) to an authorized wastewater treatment and disposal facility, or as approved by the DOH, as frequently as needed to comply with leachate sump compliance depth requirements in Special Conditions, Section I, Item 5.

c. The storage tanks and connector piping shall be situated within the limits of the landfill in areas with a Subtitle D liner system constructed in accordance with HAR 11-58.1, or within secondary containment.

d. The permittee(s) shall maintain the storage tanks and connector piping between the sumps and storage tanks at all times.

e. If the pump system or any portion of the leachate collection and removal system is inoperable, the permittee(s) shall take immediate steps to rectify the problem and implement contingency measures to comply with remaining conditions of this permit.

f. The permittee(s) shall inspect the condition and integrity of the tanks and connector piping at least once every six (6) months. The permittee(s) shall document the results of the inspections and implement corrective actions to address any findings, including but not limited to rusting, that may compromise the integrity of the system and result in a release.

g. The permittee(s) shall contract with one or more qualified and properly licensed third-party contractors to remove and transport leachate from the temporary storage tanks, to supplement any leachate transport capability of the permittee(s). The permittee(s) shall maintain a current copy of all leachate pumping agreements with third-party contractors and shall maintain the contracts in full force at all times. The permittee(s) shall provide this information to the DOH upon request.

h. The permittee(s) shall empty the E-1 berm drain and ash berm drain at a frequency such that there is no significant accumulation of liquid/leachate in each line. The permittee(s) shall empty the drains on a monthly basis and more frequently during rainfall events, or as otherwise approved by the DOH.

9. Leachate Monitoring and Recordkeeping

a. The permittee(s) shall use automated monitoring and recordkeeping systems to monitor leachate levels in all sumps and storage tanks. The automated systems shall include an alarm system to alert the permittee(s) to anomalous conditions in the sumps or storage tanks. The automated monitoring and recordkeeping systems in all sumps shall have one transducer system and one bubbler level system that each work independently of the other.

b. The permittee(s) shall maintain a log of the status of the leachate collection systems, at least three (3) times per week. The log shall include the date, level of leachate in each sump, volume of leachate in each tank, and associated pump rates.

c. The permittee(s) shall ensure that the independent sump level systems (transducer and bubbler level) are calibrated properly and provide accurate measurements of the sump levels. Additionally, the permittee(s) shall take manual measurements of all sumps on an annual basis and compare with automated measurements to ensure the bubbler levels and transducers are accurate and properly calibrated. If manual measurements are inconsistent with automated readings or other problems are identified with the system, the DOH may increase the frequency of manual measurements.

d. In the event that any portion of the automated monitoring or recordkeeping systems is under repair, maintenance, or inoperable, the permittee(s) shall provide notification to the DOH within three (3) days. Within 14 days of the initial notification, the permittee(s) shall submit written notification to the DOH describing the situation, corrective actions, and schedule. After the repair/maintenance is completed, the permittee(s) shall perform a manual measurement to verify that the automated monitoring is consistent with sump levels and perform daily measurements of both sump level systems (transducer and bubbler level) for a minimum of three (3) days, to verify that

all automated readings are consistent. Within 14 days of completion of repairs, the permittee(s) shall submit written notification to the DOH describing any deviations from the initial notification and include documentation of the manual sump level measurement verification and the minimum three-day verification test.

e. The permittee(s) shall maintain the following documentation for management of leachate from the E-1 berm drain line and ash berm drain line:
   i. date of leachate removal;
   ii. quantity of leachate removed; and
   iii. disposal method.

Groundwater and Leachate Monitoring

10. Groundwater and leachate monitoring shall be conducted in accordance with HAR 11-58.1-16, the State of Hawaii Landfill Groundwater Monitoring Guidance Document Version 1.8 dated September 2002, and the conditions of this permit.

11. The permittee(s) shall implement the Updated Groundwater and Leachate Monitoring Plan dated April 2018, approved subsequent submissions, and applicable conditions of this permit. The Groundwater and Leachate Monitoring Plan includes the location of all groundwater wells installed to date (MW-02M, MW-03M, MW-07, MW-10, MW-11, MW-14, MW-12, MW-13, and MW-16) as well as the leachate sumps in Ash Monofill Cell 8, MSW Cell E1, MSW Cell 4B, MSW Cell E6, and Ash Cell E8.

12. All sample collection, handling, management, and analysis shall be conducted in accordance with EPA SW-846, *Test Methods for Evaluating Solid Waste*.

13. Each sample shall be properly collected, identified, contained, and preserved. The name and signature of the person who collected the sample shall be included in the records. A chain of custody shall be maintained from the time of sample collection through the final analysis and disposition.

14. Sample analysis shall be conducted by an independent third party with appropriate credentials and performed at the expense of the permittee(s).

15. Groundwater samples shall be collected and analyzed on a semi-annual basis (MW-03M, MW-07, MW-10, MW-13, MW-14, MW-13, and MW-16) and annual basis (MW-02M, MW-11, and MW-12), or as required or otherwise approved by the DOH.

a. Groundwater samples shall be analyzed for constituents listed in Table 3-2 of the Groundwater and Leachate Monitoring Plan, or as required or otherwise approved by the DOH.
b. Groundwater samples from newly installed wells shall also be analyzed for during their initial monitoring event for constituents listed in Table 7-2 of the Groundwater and Leachate Monitoring Plan, or as required or otherwise approved by the DOH.

16. Leachate samples shall be collected and analyzed on an annual basis, or as required by the DOH. Leachate samples shall be analyzed for constituents listed in Table 3-2 of the Groundwater and Leachate Monitoring Plan, or as required or otherwise approved by the DOH.

17. Reduction in Testing

a. Following a minimum of two (2) years of consecutive quarterly intrawell groundwater monitoring, the permittee(s) may petition the DOH for a reduction in testing to semiannual monitoring.
b. Following a minimum of one (1) year of consecutive quarterly leachate monitoring, the permittee(s) may petition the DOH for a reduction in testing to annual monitoring.
c. The permittee(s) shall submit the request in writing. The permittee(s) must receive written approval from the DOH prior to implementation of any change in sampling frequency. If other information indicates that more frequent monitoring is justified, the DOH may reinstate the original testing and frequency requirements.

18. The permittee(s) shall prepare and submit a Groundwater/Leachate Monitoring Report within 90 days of sampling, or other applicable reporting period. At a minimum, the monitoring reports shall include:

a. Identification of wells/manholes sampled during the event;
b. Sample collection dates and methodology;
c. Identification of third party entity that performed the sample analysis;
d. Field measurements and analytical data, including copies of laboratory reports;
e. Statistical evaluation of all analytical data (except field measurements);
f. Identification of any deviations from the plan, reason for the deviation, and affect on the sampling results; and
g. Statement of whether any detections of VOCs or statistically significant increases were identified.

19. In the event of a detection of VOCs above the practical quantitation limit or a statistically significant exceedance, the permittee(s) shall comply with the requirements of HAR 11-58.1-16 and the Landfill Groundwater Monitoring Guidance document.

Section J. Closure and Post-Closure Requirements

1. The permittee(s) shall perform closure and post-closure activities in accordance with the Closure and Postclosure Care Plan, prepared by Tetra Tech BAS, as revised November 2017, approved subsequent documents, HAR 11-58.1-17, and these permit conditions. Should there be discrepancies between these documents, the HAR and these permit conditions take precedence.

2. Final cover placement for the ash cells (Cells 1, 2, 3, 6, 7, 8 and portions of Cells 4 and 5) was constructed as shown on Figure 8 of the November 2017 Closure and Postclosure Care Plan. Final cover placement for the MSW cells within Cells E2 and E3 was constructed with a four-foot monolithic evapotranspiration soil cover. Final cover for the MSW area below the west berm was constructed as shown on Figure 7 of the November 2017 Closure and Postclosure Plan.

3. The permittee(s) shall submit closure construction plans and specifications at least six (6) months prior to scheduled construction, including a proposed construction schedule. The construction plans and specifications shall be prepared and certified by a professional engineer, with at least five (5) years experience in designing landfills and registered in the State of Hawaii.

4. The permittee(s) shall provide written notice of intent to close each landfill unit at least 90 days prior to initiating closure activities. The notice of intent shall include a schedule and shall also be placed in the operating record.

5. The permittee(s) shall begin closure activities of each MSW landfill unit or ash monofill unit after receiving the DOH approval on the closure construction plans and specifications and:

    a. within 30 days after the date on which the unit receives the known final receipt of wastes; or
    b. within one (1) year after the most recent receipt of wastes, if remaining capacity exists, and there is reasonable likelihood that the landfill unit or ash monofill unit will receive additional wastes; except, as provided in Special Conditions, Section J, Item 3.

6. Soil with contaminant concentrations above DOH-EALs for unrestricted use shall not be used in the final cover system.

7. The permittee(s) shall complete closure activities of each unit within 180 days following the beginning of closure in Special Conditions, Section J, Item 5 or 6. The permittee(s) shall retain a professional engineer registered in the state of Hawaii for the supervision of the closure construction quality assurance requirements, and upon the completion, the engineer shall submit a summary report to the DOH as to the complete conformity to the plans and specifications as approved. The summary report shall be submitted within 60 days after closure activities are completed. The summary report shall include a certification that the permeability of the final cover system shall be less than or equal to the permeability of each type of bottom liner system present at the facility. The summary report shall also include a description of closure activities, as-built drawings, surveys of the final cover system, a documented control program of the final cover system construction, quality assurance/quality control testing procedures, laboratory analyses, and engineer's certification of construction.

8. At a minimum, the Closure and Post-Closure Plan and the Financial Assurance report shall be revised every five (5) years, or whenever facility plans are updated or changed. This is not withstanding the requirement to make adjustments for inflation on an annual basis.

9. Within 90 days of completion of closure construction, the permittee(s) shall submit a copy of the notation on the deed to the landfill property in accordance with HAR 11-58.1-17.

10. The permittee(s) shall inspect and maintain the final cover system, including portions of the final cover system in the case of a phased closure, and other environmental controls associated with the facility on a quarterly basis, or more frequently if required by the DOH. If post closure plans are inadequate to maintain the integrity of the final cover system and associated environmental controls, additional measures may be required. The DOH may periodically require revisions to the plan.

    a. The inspections of the final cover system shall include but are not limited to: an assessment of security control; erosion and erosion damage; cap deformation resulting from settlement, subsidence, or deformation; and runoff control structures.
    b. The inspections of other environmental controls shall include, but are not limited to, an assessment of the surface water management system,

perimeter gas monitoring system, leachate collection and control system, and presence of odors, vectors, and litter.

c. The permittee(s) shall document findings and implement corrective actions or other procedures, as necessary to maintain the integrity and functionality of the final cover system and environmental controls. The permittee(s) shall submit written notification of any areas requiring attention and any associated corrective actions or procedures performed, within 30 days of the quarterly inspection.

11. The permittee(s) shall operate the surface water management system, perimeter gas monitoring system, leachate collection and control system, and groundwater/leachate monitoring programs in accordance with this permit. The DOH may periodically require revisions to the plans.

12. During closure and post-closure periods, the permittee(s) shall continue to assess the landfill after emergency events such as earthquakes and fires, in accordance with Special Conditions, Section A, Item 13.

13. If portions of the landfill are closed while the remainder of the facility is still operating, the permittee(s) shall continue operating and monitoring the closed sections in accordance with this permit. If the entire facility is no longer accepting waste, the permittee(s) shall continue operating and monitoring the closed sections in accordance with this permit.

Section K. Recordkeeping and Reporting Requirements

1. The permittee(s) shall maintain records in accordance with HAR 11-58.1-15(j), Standard Conditions, Item 11, and the conditions of this permit. Records shall include the following list and any other recordkeeping requirements set forth in this permit:

   a. Financial assurance requirements (Special Conditions, Section A, Item 12)
   b. Select waste screening (Special Conditions, Section B, Item 2.h.iii)
   c. Site-specific Interface Friction Tests (Special Conditions, Section B, Item 7)
   d. Load Check Data Sheets (Special Conditions, Section C, Item 2)
   e. Training records (Special Conditions, Section A, Item 11; Section C, Item 2; and Section D, Item 5)
   f. Daily log of unacceptable waste (Special Conditions, Section C, Item 3)
   g. Special Waste Acceptance Program (Special Conditions, Section C, Item 5)
   h. User population (Special Conditions, Section D, Item 2)
   i. Climatic information (Special Conditions, Section D, Item 4)

j. Litter control (Special Conditions, Section D, Item 9)
k. Temporary storage/other activities (Special Conditions, Section D, Items 10 and 11)
l. Asbestos disposal locations (Special Conditions, Section E, Item 5)
m. Special disposal procedures for contaminated material (Special Conditions, Section E, Item 9.d)
n. Daily cover log (Special Conditions, Section E, Item 14)
o. Daily/weekly cover monitoring verification program (Special Conditions, Section E, Item 17 and Section F, Item 11)
p. Monthly monitoring of intermediate cover (Special Conditions, Section E, Item 21 and Section F, Item 15)
q. Ceasing operations due to wind (Special Conditions, Section E, Item 22)
r. Dust control measures at ash monofill due to wind (Special Conditions, Section F, Item 17)
s. Inspection of tanks and connector piping for leachate and leachate pumping agreements (Special Conditions, Section I, Item 8)
t. Leachate collection system logs (automatic and manual) (Special Conditions, Section I, Item 9)
u. Revisions to Closure and Post-Closure Plan and Financial Assurance Report (Special Conditions, Section J, Item 8)
v. Inspections of final cover system (Special Conditions, Section J, Item 10)

2. The permittee(s) shall comply with the reporting requirements of Standard Condition No. 11, the following list, and any other reporting requirements set forth in this permit:

a. Operations outside normal operating hours (Special Conditions, Section A, Item 6)
b. Personnel updates (Special Conditions, Section A, Item 10)
c. Financial assurance requirements (Special Conditions, Section A, Item 12)
d. Incident reporting, including suspected subsurface fires (Special Conditions, Section A, Item 13)
e. Evaluation of landfill integrity after emergency events (Special Conditions, Section A, Items 13.c and 13.d)
f. Annual updates to Alternate Waste Disposal Option (Special Conditions, Section A, Item 14)
g. Select waste screening (Special Conditions, Section B, Item 2.h.iii)
h. 4B Leachate Sump Discharge Riser extension (Special Conditions, Section B, Item 5.b)
i. Liner installation notification (Special Conditions, Section B, Item 8)

j. Identification of hazardous or PCB waste (Special Conditions, Section C, Item 3.d)
k. Radioactive waste detection (Special Conditions, Section C, Item 4)
l. Contaminated materials acceptance (Special Conditions, Section C, Item 5.d)
m. Changes to user population (Special Conditions, Section D, Item 2)
n. Acceptance of odorous loads (Special Conditions, Section E, Item 8.f)
o. Daily/weekly cover monitoring verification program (Special Conditions, Section E, Item 17 and Section F, Item 11)
p. Acceptance of industrial/commercial ash at the ash monofill (Special Conditions, Section F, Item 1)
q. Implement precautionary storm water containment actions (Special Conditions, Section G, Item 1.b.v)
r. Gas monitoring probe repair (Special Conditions, Section H, Item 3)
s. Explosive gas exceedances (Special Conditions, Section H, Items 6 and 7)
t. Monitoring well/manhole repair (Special Conditions, Section I, Item 7)
u. Manual leachate monitoring (Special Conditions, Section I, Item 9)
v. Notification of intent to close landfill units (Special Conditions, Section J, Item 4)
w. Final cover system areas requiring attention (Special Conditions, Section J, Item 10)

3. The permittee(s) shall submit the following documents, and any other document requirements specified in this permit, in hardcopy and electronic format:

a. Monitoring system program for earthquakes to include (Special Conditions, Section A, Item 13.d.ii)
b. Construction drawings to modify operations layer design for E8 (Special Conditions, Section B, Item 2.i)
c. Construction Quality Assurance reports (Special Conditions, Section B, Item 14)
d. Seismic monitoring construction drawings for cell E9 (Special Conditions, Section B, Item 20)
e. Vector-specific control/prevention plan (Special Conditions, Section D, Item 8)
f. Surface water management plan (Special Conditions, Section G, Item 4)
g. Phase II construction drawings for Eastern Drain Water System (Special Conditions, Section G, Item 1.b.vi)
h. Gas monitoring probe installation report (Special Conditions, Section H, Item 1)
i. Gas monitoring probe construction/repair (Special Conditions, Section H, Item 3)
j. Explosive gas monitoring reports (Special Conditions, Section H, Item 5)

k. Explosive gas exceedance plans/reports (Special Conditions, Section H, Item 7)
l. Groundwater and Leachate Management Plan (Special Conditions, Section I, Item 1)
m. Monitoring well/sump construction and repair (Special Conditions, Section I, Item 7)
n. Groundwater/Leachate Monitoring Report (Special Conditions, Section I, Item 18)
o. Closure plans and specifications (Special Conditions, Section J, Item 3)
p. Summary report of closure construction (Special Conditions, Section J, Item 7)
q. Copy of notation to deed following closure (Special Conditions, Section J, Item 9)

4. The permittee(s) shall submit an Annual Operating Report (AOR), for the reporting period July 1 to June 30. The AOR shall be submitted by July 31 of each year to:

Solid and Hazardous Waste Branch
Environmental Management Division
Hawaii Department of Health
2827 Waimano Home Road #100
Pearl City, Hawaii 96782

5. The AOR shall be submitted in hardcopy and electronic format, and shall include the following information:

a. Types of solid waste received (MSW, ash, industrial/commercial, asbestos, and other special wastes).

b. Quantities of solid wastes received by type with totals using an appropriate unit of measure.

c. Quantities of leachate (gallons) generated and how it was handled or disposed.

d. Quantities of filled airspace for the present year, past filled airspace and remaining airspace in both cubic yards and years shall be provided. The information shall be provided in both numerical and graphical presentations.

e. On or before July 31 of each year, the permittee(s) shall submit an annual topographic survey of the site as prepared by a land surveyor registered in the state of Hawaii, aerial surveys, or an approved alternate method. The survey shall compare topographic elevations to final grades as approved in this permit. The permittee(s) shall also submit annual surveys of leachate sumps, as required by Special Conditions, Section I, Item 4.

f. A Sequencing Plan, including a drawing, identifying the cell areas to be filled in the coming year including identification of the wet weather areas. The cell areas and wet weather area capacity shall be provided using an appropriate unit of measure.

g. Final fill areas, intermediate fill areas, and future unused fill areas shall be identified for the projected year.

h. Daily (MSW) and weekly (ash) cell construction plan, including cell geometry, estimated daily/weekly cover volumes, and soil to waste ratios.

i. A soil-balance report of the past year and coming projected year reported separately. The soil daily cover and intermediate cover including erosion replacement soil also shall be reported separately. The source and type of soil shall be recorded separately for daily cover and intermediate cover. The soil-balance report for the past year shall be based on records of actual use in a daily, weekly, and monthly basis. Any exceedance of permit grades or incomplete/non-application of daily cover shall be identified. Current soil use records shall be maintained at the facility for review.

j. Date of final receipt of waste at each cell in the landfill. A schedule and description of anticipated closure and post-closure activities to be performed within the next five years.

k. A summary of closure and post-closure activities performed during the reporting period.

l. A copy of the detailed written estimates and documentation of financial assurance.

m. Alternate Waste Disposal Plan updates (See Special Conditions, Section A, Item 14).

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 768-3486 ● FAX: (808) 768-3487 ● WEBSITE: http://envhonolulu.org

KIRK CALDWELL
MAYOR

LORI M.K. KAHIKINA, P.E.
DIRECTOR

TIMOTHY A. HOUGHTON
DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RD 20-030

July 15, 2020

Mr. Jonathan Likeke Scheuer, Chair
Land Use Commission
Department of Business, Economic Development & Tourism
State of Hawaii
235 South Beretania Street, Room 406
Honolulu, Hawaii 96813

Mr. Arthur D. Challacombe, Chair
Planning Commission
c/o Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

2020 JUL 21 A 10:27

Dear Messrs. Scheuer and Challacombe:

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

In accordance with the November 1, 2019 State Land Use Commission Order Approving with Modifications the City and County of Honolulu Planning Commission's Recommendation to Approve Special Use Permit, the attached First Semi-Annual Report is submitted for your information. This report covers the period from June 2019 through April 2020, unless otherwise stated in the report.

The report is being concurrently submitted to the Planning Commission and Land Use Commission.

Sincerely,

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

Attachment

EXHIBIT "A7"

FIRST SEMI-ANNUAL REPORT

STATUS OF ACTIONS TAKEN TO COMPLY WITH THE STATE LAND USE COMMISSION'S ORDER DATED NOVEMBER 1, 2019
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 2020

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PREFACE

This report was prepared in accordance with the State of Hawaii Land Use Commission's ("LUC") Order Approving With Modifications the City and County of Honolulu Planning Commission's Recommendations to Approve a Special Use Permit, dated November 1, 2019 ("LUC Order").

Under Condition No. 7 of the LUC Order, the Applicant (Department of Environmental Services, City and County of Honolulu, hereinafter "ENV") shall provide semi-annual reports to the Planning Commission of the City and County of Honolulu ("Planning Commission") and the LUC regarding the following:

a) The status of the efforts to identify and develop a new landfill site on Oahu,

b) The WGSL's operations, including gas monitoring,

c) ENV's compliance with the conditions imposed herein,

d) The Landfill's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the landfill,

e) The City's efforts to use alternative technologies,

f) The extent to which waste is being diverted from the landfill and

g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the landfill.

This is the first semi-annual report submitted in accordance with Condition No. 7 and covers the period from June 2019 through April 2020, or as otherwise stated. The last report on the status of WGSL operations was submitted under a previous LUC order dated October 2, 2009 and covered the period from June 2018 through May 2019.

The second semi-annual report due in November 2020 will cover the six-month period from May 2020 through October 2020.

STATUS OF IDENTIFYING AND DEVELOPING NEW LANDFILL SITES ON OAHU

1. General

Condition No. 5 of the LUC Order requires that, by no later than December 31, 2022, ENV shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, ENV shall provide written notice to the Planning Commission and the LUC.

2. Current Status

The City has been engaged in an ongoing effort to identify a landfill site. Condition 4 of the prior LUC Order in Docket No. SP09-403, which was certified on October 22, 2009 ("2009 LUC Order"), stated:

"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."

In accordance with Condition 4 of the 2009 LUC Order, the Landfill Advisory Committee (LAC) met in 2011 and 2012, and completed its final report on September 25, 2012. All committee meetings were open to the public and to public comment. In the final report, 11 potential sites were identified and ranked based on community criteria. Handouts provided to the LAC, the Group Memory of each meeting, and the final report are posted online at www.opala.org.

The City retained a consultant to further review and analyze the sites based on technical and engineering considerations. The report, "Assessment of Municipal Solid Waste Handling Requirements for the Island of Oahu", was completed in November 2017 and is available online at www.opala.org.

Funding has been requested and approved to begin planning for siting a new landfill based on the results of these reports. See section on Funding Arrangements in this report.

3. Integrated Solid Waste Management Plan

Hawaii Revised Statutes (HRS) Section 342G-24 requires each county to submit revised integrated solid waste management plans every 10 years with an interim status report submitted five years after every submission of a revised plan. The City has completed the most recent Integrated Solid Waste Management Plan, dated November 2019. The plan was completed after Solid Waste Advisory Committee meetings, DOH

review, and a public comment period. Comments from each step were incorporated. The Plan has been posted online at www.opala.org.

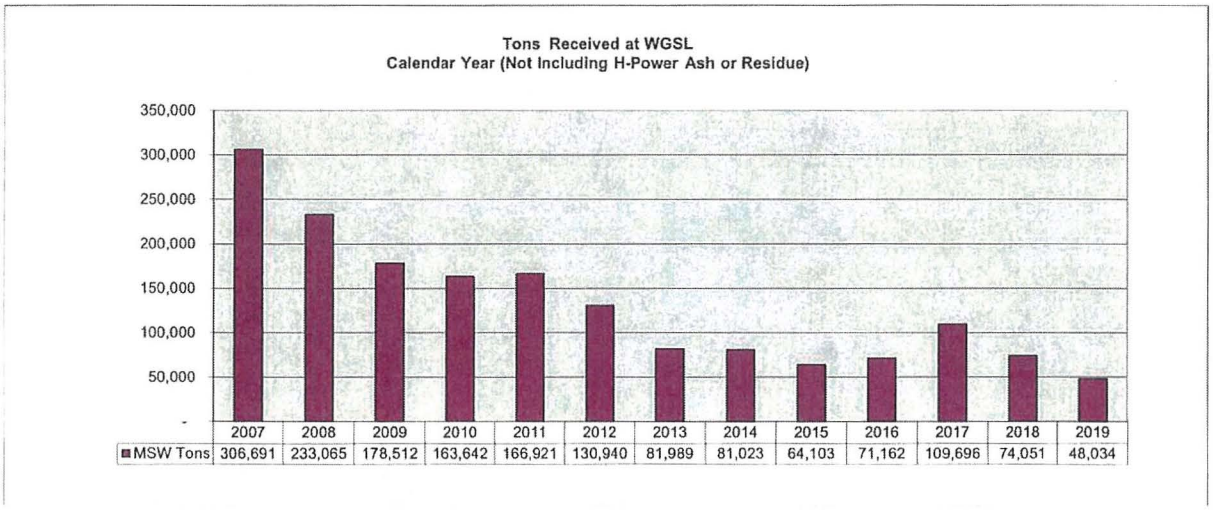
STATUS OF LANDFILL OPERATIONS

1. Tonnage

Over the period beginning June 1, 2019, through April 30, 2020, the Waimanalo Gulch Landfill received the following amounts of material:

H-POWER Ash.....	116,080 tons
H-POWER Residue.....	26,700 tons
Municipal Solid Waste (MSW).....	45,009 tons

The following graph illustrates the reduction of MSW delivered to the landfill generally as a result of diverting more waste to H-POWER. Note that the increase in MSW landfilled in 2017 was due to major refurbishment of the processing lines at H-POWER, a once in 30-year project. The 2020 tonnage is currently projected to be around 50,000 tons.



2. Remaining Capacity

As of March 15, 2019 (the date of the last aerial survey), the landfill has 1,192,570 cubic yards of MSW and 4,121,720 cubic yards of ash airspace remaining. Using the average fill rates and airspace utilization between February 14, 2018 and March 15, 2019 (time between surveys), the landfill has approximately 19 years of combined MSW and ash life remaining or would reach capacity in the year 2039. Note that advances in technology and additional landfill diversion, discussed further in this report, could reduce the City's use of the landfill, thereby slowing the rate of landfilling and delaying the date upon which the landfill will reach capacity to sometime after 2039.

The results of the 2020 survey will be reported in the next Annual Operating Report due to DOH on July 31, 2020 and will be reported in the next semi-annual report.

3. Current Status of WGSL

Activities conducted during the reporting period include MSW landfilling in Cells E-5, E-6 and E-7 and ash landfilling in Cells E-8 and E-9.

4. Gas Monitoring

The gas collection and recovery system at the landfill continues to expand to accommodate landfilling operations while maintaining compliance. New landfill gas collection wells and vacuum lines are being planned for installation later this year to improve collection efficiency.

ENV is also developing a landfill gas-to-energy RFP now that the landfill is close to crossing the threshold for a viable project.

COMPLIANCE WITH CONDITIONS OF ORDER

The LUC approved with modifications the Planning Commission's recommendations to approve a special use permit for WGSL and approved with modifications ENV's applications, subject to 17 conditions. The general description and status of each condition is as follows:

Condition No.	Description
1	**The WGSL shall close by no later than March 2, 2028. The WGSL shall not accept any form of waste after March 2, 2028.** Status: So noted
2	**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.** Status: All applicable permits/approvals have been obtained.
3	**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.** Status: Dust control measures and management plan have been provided for as part of the Solid Waste Management Permit issued by the DOH.
4	**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.** Status: So noted.
5	**By no later than December 31, 2022, the Applicant shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, the Applicant shall provide written notice to the Planning Commission and the LUC.** Status: See section on Status of Identifying and Developing New Landfill Sites on Oahu in this report.

Condition No.	Description
6	**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.** Status: See section on Alternative Technologies in this report.
7	**The Applicant shall provide semi-annual reports to the Planning Commission and the LUC regarding the following: a) The status of the efforts to identify and develop a new landfill site on Oahu, b) The WGSL's operations, including gas monitoring, c) The Applicant's compliance with the conditions imposed herein, d) The Landfill's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the landfill, e) The City's efforts to use alternative technologies, f) The extent to which waste is being diverted from the landfill and g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the landfill.** Status: Subsequent reports will be submitted every 6 months in May and November of each year.
8	**Closure Sequence "A" for the existing landfill cells at WGSL as shown on Exhibit "A12" must be completed, and final cover applied, by December 31, 2012.** Status: Closure Sequence "A" was commenced in June 2012 and the final cover was applied and substantially completed in December 2012.
9	**WGSL 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.** Status: 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.

Condition No.	Description
10	**The Applicant shall coordinate construction of the landfill cells in the expansion area and operation of WGSL 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.** Status: Coordination with HECO will be done to ensure that landfill construction and operations are adequately separated from overhead electrical power lines.
11	**The operations of the WGSL 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.** Status: Revised Ordinances of Honolulu § 21-5.680 is inapplicable to the WGSL as that Property is a public use and said ordinance therefore does not impact operations at WGSL. The operations of the WGSL are in compliance with any and all applicable rules and regulations of the DOH.
12	**The Planning Commission may at any time impose additional conditions when it becomes apparent that a modification is necessary and appropriate.** Status: So noted.
13	**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.** Status: So noted.
14	**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).** Status: Respective notifications will be made prior to termination of the use of the property as a landfill.
15	**The Applicant shall report to the public every three months on the**

Condition No.	Description
	efforts of the City Council and the City Administration in regard to the continued use of the WGSL, including any funding arrangements being considered by the City Council and the City Administration. Status: See Condition No. 16 Status.
16	**The Applicant shall have a public hearing every three months in either Waianae, Maili, or Nanakuli to report on the status of their efforts to either reduce or continue the use of the WGSL.** Status: After November 1, 2019 (the date of the LUC Order), public hearings are being conducted in Nanakuli every 3 months to report on the status of efforts to either reduce or continue the use of the WGSL and the efforts of the City Council and City Administration in regard to the continued use of the WGSL, including any funding arrangements being considered by the City Council and the City Administration. ENV publishes public notice of the public hearings in the newspaper and posts notice on www.opala.org. Summaries of the hearings are posted online at opala.org. During the reporting period, 2 public hearings were held at Kapolei Hale on July 15, 2019 and October 21, 2019 and one public hearing was held at Kalanianaole Beach Park on January 21, 2020. For the 3 hearings held during this period, no members of the public attended. The public hearing that would have normally been scheduled at Kalanianaole Beach Park for April 14, 2020 was postponed due to the COVID-19 emergency. However, ENV took the following actions to keep the public informed and provide the information required by Conditions 15 and 16 of the LUC Order: 1. Information that ENV planned to share was posted online at www.opala.org. 2. ENV notified the public of the availability of the information by posting notices on the website and social media platforms. 3. The public was given the opportunity to submit questions about the content of the posted information. 4. Questions received within 30 days, as well as the responses to such questions, were to be compiled and posted online. No comments were received within the 30-day period in response to the April 14, 2020 postings.

Condition No.	Description
17	**If the landfill releases waste or leachate, the Applicant must immediately a) notify the surrounding community, including the Makakilo/Kapolei/Honokai Hale, Waianae Coast and Nanakuli-Maili Neighborhood Boards, Intervenors Schnitzer Steel Hawaii Corp., Ko Olina Community Association, Maile Shimabukuro and Colleen Hanabusa and b) take remedial actions to clean up the waste and to keep the waste from spreading. Such remedial actions shall include, but shall not be limited to, placing debris barriers and booms at the landfill's shoreline outfall to prevent waste from spreading into the ocean.** Status: So noted.

REGULATORY COMPLIANCE

1. 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 by DOH later in 2020. New cell construction and drainage improvements are complete.

During the reporting period, there were two incidents of note. Note that these were self-reported to DOH and have not resulted in a Notice of Violation.

On October 25, 2019, the landfill reported to DOH that due to heavy rainfall events in October, several leachate sumps were beyond the compliance level (note that the compliance level is well below the ground surface and there was no spill). Additional leachate pumping was dispatched as needed to catch up.

On November 6, 2019, Sea Life Park's contractor Nakasato Contracting inadvertently disposed of nine buckets of granular chlorine at the landfill. When the landfill operator observed the material, it was segregated, covered and then removed by a certified hazmat team.

2. Special Use Permit (SUP)

The proceedings at the Honolulu Planning Commission (Planning Commission) and LUC relating to File No. 2008/SUP-2 have concluded. On June 10, 2019, the Planning Commission filed its Findings of Fact, Conclusions of Law, and Decision and Order. The Planning Commission's records in the proceeding were transmitted to the LUC in September 2019, and the LUC met in October 2019 to consider the Planning Commission's decision. On November 1, 2019, the LUC filed its Findings of Fact, Conclusions of Law, and Decision and Order Approving With Modifications the City and County of Honolulu Planning Commission's Recommendation to Approve Special Use Permit in Docket No. SP09-403. A copy of the decision is available on the LUC's website at https://luc.hawaii.gov/wp-content/uploads/2019/11/SP09-403-final-FOFCOLDO-2019.pdf

3. Consent Decree

The City and Waste Management of Hawaii (WMH), the landfill operator, reached a Settlement Agreement with the U.S. Environmental Protection Agency (EPA) and DOH over alleged violations of the Clean Water Act and State law. The alleged violations arose primarily from storm events that occurred in the winter of 2010-2011, during construction of the WGSL's western diversion drainage system. The EPA and DOH alleged that following the large rain storms in December 2010 and January 2011, the City and WMH violated the Clean Water Act by discharging pollutants without National Pollutant Discharge Elimination System Permit authorization and by discharging pollutants in storm water in violation of the terms of the Notice of General Permit Coverage for Industrial Stormwater issued to the City.

On July 3, 2019, the U.S. District Court for the District of Hawaii entered the consent decree in United States of America and State of Hawaii Department of Health v. Waste Management of Hawaii, Inc. and City and County of Honolulu, Case No. 1:19-cv-00224.

In accordance with the consent decree, the City paid a civil penalty of $62,500 to the United States and $62,500 in lieu of a civil penalty to the state Department of Land and Natural Resources Division of Aquatic Resources. Similarly, WMH paid $150,000 to each entity.

Also in accordance with the consent decree, the City and WMH implemented enhancements to the landfill's western diversion drainage system, revised the facility's stormwater pollution control plan, and applied for an individual stormwater permit for WGSL. The City and WMH continue to comply with the detention basin operating and monitoring parameters set forth in the consent decree.

ALTERNATIVE TECHNOLOGIES AND LANDFILL DIVERSION

1. H-POWER

The H-POWER waste-to-energy facility, operated by Covanta, continues to process over 750,000 tons of municipal solid waste each year. The facility has operated reliably for over twenty-eight years and has disposed of about 19,000,000 tons of municipal solid waste, generating in excess of $55,000,000 annual net revenues from the sale of electricity, recovered metals and tipping fees, and avoided the importation of about 19,000,000 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 April 2, 2013. It 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, and other efforts to divert waste from the landfill, H-POWER now plays an even larger role in reducing waste disposal 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.

ENV is also coordinating with Island Commodities Corporation (ICC) to devise various options for processing food waste rendering sludge at H-POWER and to schedule test loads. ICC is installing new equipment at their facility to further reduce the need for landfill or H-POWER disposal.

b. Medical Waste

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

c. Tires

H-POWER's solid waste management permit issued by DOH allows acceptance of used auto tires collected by the City, including refuse collection, convenience centers and illegal dumping up to 400 tires per day or 65,000 tires per year.

d. Ash and Process Residue

The process residue generated by H-POWER was reduced by 50% after the trommel refurbishment project was completed in late 2017.

Emerging technologies are being explored for further reducing ash and process residue disposal at the landfill. An ash, residue and automobile shredder residue (ASR) recovery and recycling Request for Proposals (RFP) was re-issued in February 2020. One proposal was received and is under review.

e. Auto Shredder Residue (ASR)

Approximately 30,000 tons per year of ASR is disposed at WGSL. Although ASR was envisioned to be diverted to H-POWER, evaluation of ASR test data has concluded that the high Fluorine and Chlorine content of the material can be extremely harmful to the boiler. The matter is pending further evaluation and possible testing. Further, as indicated above, the City issued an RFP in February 2020 to recover/recycle ASR. The one proposal received considers ASR processing as a potential future option.

f. In-Feed Waste Processing Improvements and Baling

ENV and Covanta are planning in-feed waste processing improvements to the Refuse Derived Fuel (RDF) Waste Processing Facility that will include a mobile baling system. The project will allow processing of bulky waste into RDF. The mobile baler will provide flexibility to store waste during extended maintenance outages. The baled waste would be stored and processed later, further reducing diversion of waste to the landfill. As of this writing, equipment is being procured. After installation later this year, the equipment is projected to be tested and commissioned by the end of 2020.

g. Bulk Loads of Food Waste

Since March 1, 2017, bulk loads of commercially-generated spoiled food have been diverted from WGSL.

2. Sludge Re-use

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

Sand Island WWTP: Processes sewage sludge into fertilizer pellets using the Synagro process. Please see table below summarizing annually the percentages of sludge that was reused and landfilled, respectively. Note that there are times, especially during calendar year 2016, when the farms experienced heavy rains and were not accepting the pellets.

Year	Reused %	Landfill %
2014	93%	7%
2015	97%	3%
2016	89%	11%
2017	94%	6%
2018	94%	6%
2019	91%	9%

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

Another technology seriously being considered by the City involves the processing and conversion of glass into a useful lightweight building material. This technology, which originated in Japan, promises to be an excellent glass recycling option and, if feasible, could eliminate the high cost of shipping glass to mainland recycling markets, while generating a marketable building material. As of this writing, the Glass RFP received one proposal that was determined to be too costly to pursue. The City decided to cancel the RFP indefinitely.

4. Materials Recycling

To present a complete waste flow picture for Oahu, the most current data available is for calendar year 2018. Although waste to the landfill and HPOWER is tracked every month by ENV, recycling data is provided by commercial recycling companies that are surveyed annually. Recycling data for 2018 was gathered and compiled during the first half of 2019; updated charts and analysis are posted below. Recycling data for 2019 will be compiled and will be posted on Opala.org by mid-year of 2020.

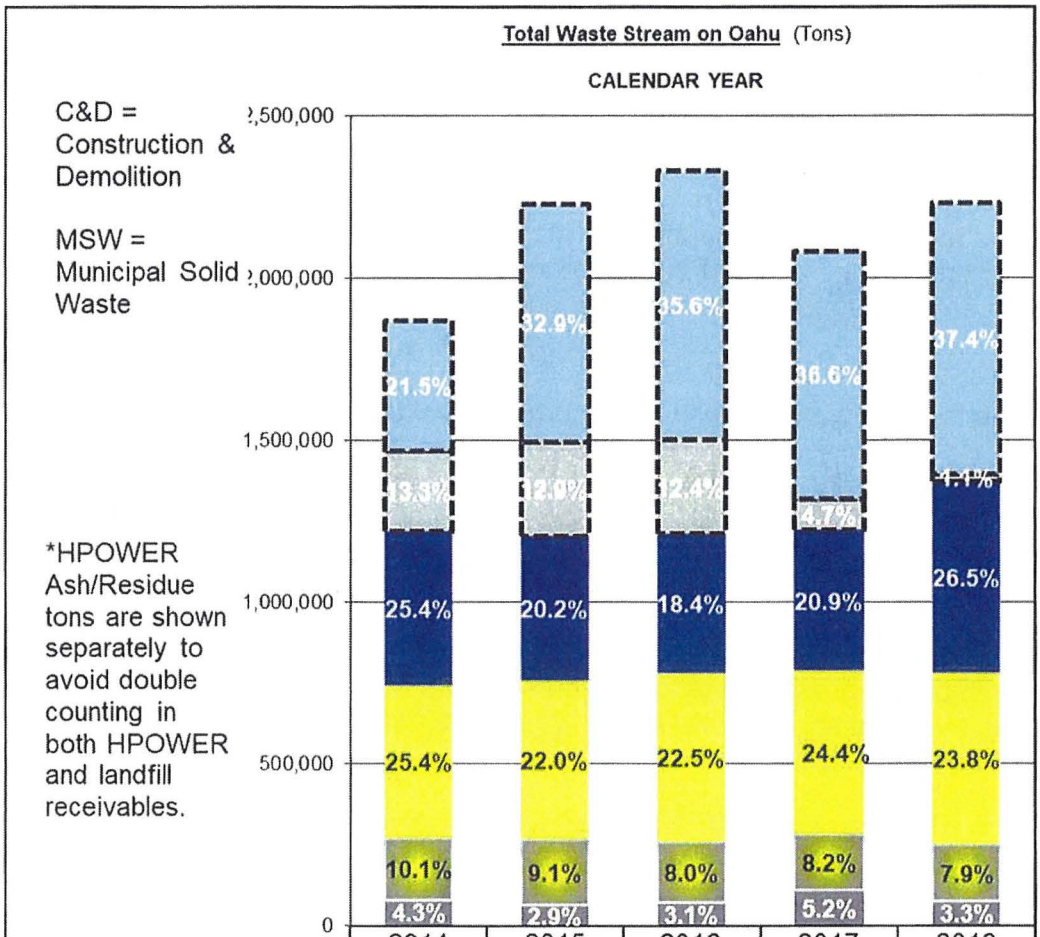
The island's waste data is presented in two charts:

1. TOTAL WASTE which includes Municipal Solid Waste (MSW) and Construction and Demolition (C&D) material, processed through recycling, waste-to-energy or landfilling; and
2. MSW only, processed through recycling, waste-to-energy or landfilling.

Both charts present data for the most recent five (5) calendar years (2014-2018). Moreover, this data shows how Oahu's waste has been diverted from the landfill through recycling and waste-to-energy.

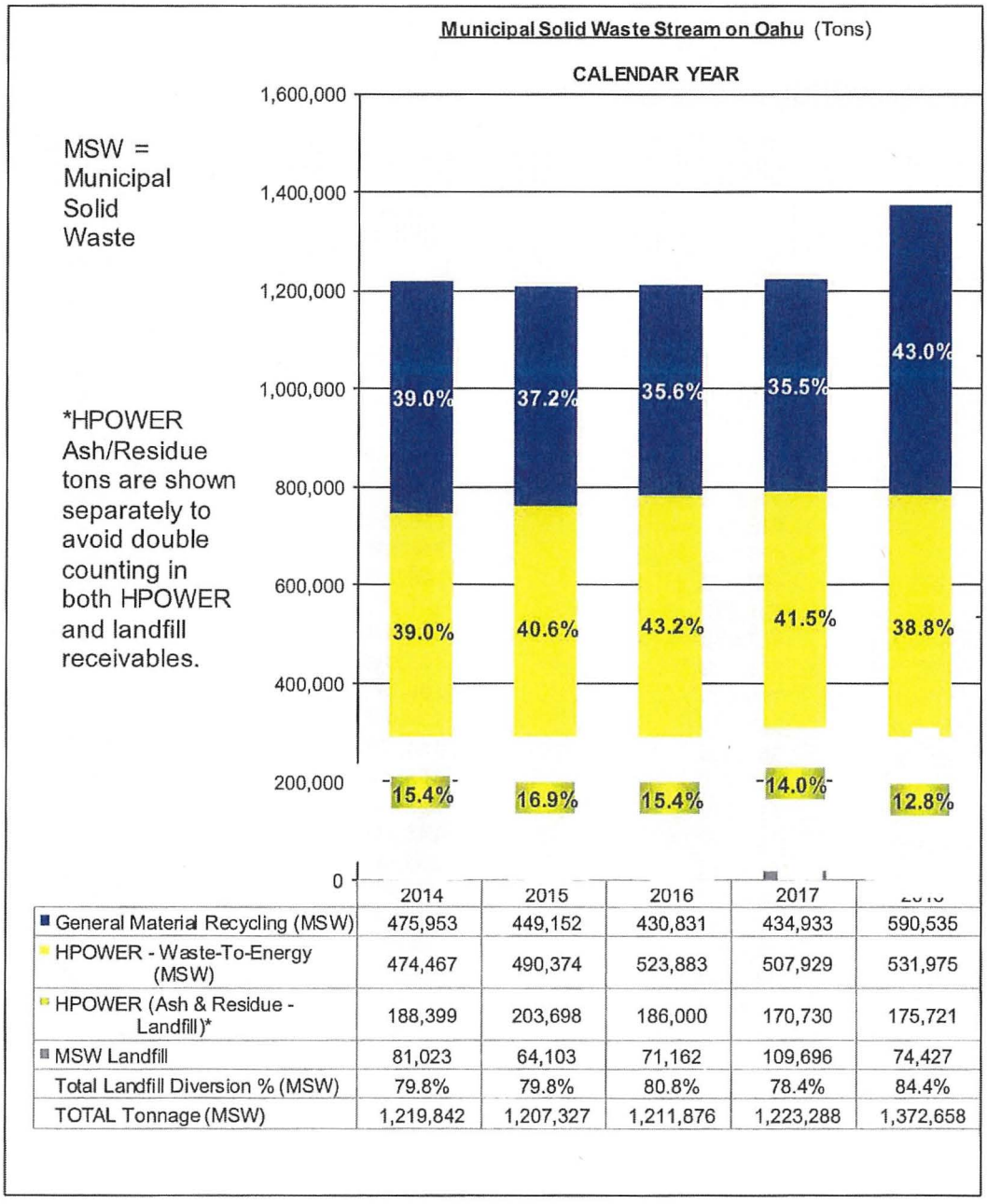
TOTAL WASTE data is presented in the chart below. For 2018, rates for C&D material recycling and disposal increased from the 2017, while recycling and waste-to--energy combined to divert nearly 89% of waste from the landfill.

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 (C&D) waste only.



	2014	2015	2016	2017	2018
C & D - Recycling	401,334	731,864	830,414	763,279	833,566
C & D Landfill	248,032	288,258	289,924	97,426	24,939
General Material Recycling (MSW)	475,953	449,152	430,831	434,933	590,535
HPOWER - Waste-To-Energy (MSW)	474,467	490,374	523,883	507,929	531,975
HPOWER (Ash & Residue - Landfill)*	188,399	203,698	186,000	170,730	175,721
MSW Landfill	81,023	64,103	71,162	109,696	74,427
Total Landfill Diversion % (MSW / C&D)	73.6%	76.1%	77.6%	82.7%	89.3%
TOTAL Tonnage	1,869,208	2,227,449	2,332,214	2,083,993	2,231,163

MSW ONLY data is presented in the chart below. Robust recycling and waste-to-energy rates continue to contribute to the steady decline of MSW tonnage going to the Waimanalo Gulch Sanitary Landfill. Considering MSW only and landfill diversion specific to the WGSL, the landfill diversion rate achieved through recycling and waste-to-energy is nearing 89%, and the general material recycling rate is almost 43%. Landfill diversion rates for the most recent five (5) years at WGSL are charted below, allowing for a better visual assessment of the data. Important to note that of the 13% of material landfilled at WGSL in 2017, little over 5% was MSW, with the rest consisting of ash and noncombustible residue from HPOWER.



	2014	2015	2016	2017	2018
General Material Recycling (MSW)	475,953	449,152	430,831	434,933	590,535
HPOWER - Waste-To-Energy (MSW)	474,467	490,374	523,883	507,929	531,975
HPOWER (Ash & Residue - Landfill)*	188,399	203,698	186,000	170,730	175,721
MSW Landfill	81,023	64,103	71,162	109,696	74,427
Total Landfill Diversion % (MSW)	79.8%	79.8%	80.8%	78.4%	84.4%
TOTAL Tonnage (MSW)	1,219,842	1,207,327	1,211,876	1,223,288	1,372,658

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 430,000 tons today. Recycling of construction and demolition (C&D) materials, such as concrete, rock and asphalt, contributed an additional 870,000 tons to the recycling rates, for a total of almost 1.3M tons recycled for 2018. 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 since 2015 due to ongoing major projects across the island.

Yearly Recycling Rates (tons)

Year	General Material Recycling	C&D Recycling	Total Recycled
2018	431,911	868,617	1,300,528
2017	434,933	763,279	1,198,212
2016	430,831	830,414	1,261,245
2015	449,153	731,865	1,181,018
2014	475,953	401,335	877,286
2013	477,011	257,287	734,298
2012	487,159	179,906	667,065
2011	490,061	181,087	671,148
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

Oahu Recycling 2018	
Material Type	**Amount in tons**
PAPER	
Corrugated Cardboard	43,562
Newspaper	12,758
Office Paper	7,581
Other Paper	849
METALS	
Ferrous (includes autos)	134,988
Non-Ferrous (includes aluminum)	16,196
GLASS	14,571
PLASTIC	5,127
TIRES	7,211
AUTO BATTERIES	6,605
ELECTRONIC SCRAP	1,170
GREEN WASTE (yard trimmings)	111,907
WOOD WASTE/PALLETS	13,942
CONSTRUCTION & DEMOLITION (rock, concrete, asphalt)	868,617
FOOD WASTE	38,667
OTHER REUSE (Goodwill, Salvation Army)	16,778
TOTAL	1,300,528

The City's efforts to increase residential recycling rates have continued with its ongoing efforts to educate residents about the value and benefits of its three cart curbside program, and the continued promotion of its condominium recycling assistance program. Additionally, the City requires commercial sector recycling through mandatory laws established by City ordinance, and provides assistance to businesses to setup and expand their recycling programs.

a. Curbside Recycling – Curbside recycling participation remains strong and material recovery rates are increasing every year. 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, capturing material at a rate of 23,000 tons of mixed recyclables and 75,000 tons of green waste per year. Increased public experience with identifying and sorting recyclables is producing higher results for the City's curbside recycling program. The program continues to be evaluated to identify strategies for improving participation and efficiencies.

b. Multi-Material Recycling Centers – Recycling is available to those without curbside collection service. There are two City recycling drop-off locations in Haleiwa, one fronting its Waialua Base Yard (Emerson Rd) and the other at its Kawailoa Transfer Station. Both locations feature several 96-gallon blue carts, complete with instructional signage and stickers for the community to use. All

blue cart recyclables are acceptable, including plastics (1 & 2), glass bottles and jars, metal cans, newspaper, paper bags, corrugated cardboard and white and colored office paper.

c. Condominium Recycling -- 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 electronic 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 most recent four State legislative sessions (2012, 2013, 2014, and 2015). In 2015 the law was amended to require electronic device manufacturers to establish drop-off locations for e-waste and prohibited 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 policy established in the mid 1990's, which requires office buildings to recycle office paper, bars/restaurants to recycle glass and a variety of food operations to recycle food waste. It is no longer mandatory for ADF glass to be sorted by the liquor establishments but the recyclers still receive ADF glass through their commercial accounts. The City suspended the ADF portion of the glass relating to the glass ordinance but the City still receives the State Subsidy for ADF glass that the recyclers are collecting. Disposal site bans/restrictions divert materials from landfill and H-POWER, including green waste, cardboard, metals, tires, auto batteries, and 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 – As of July 1, 2015, businesses are prohibited from providing plastic checkout bags and non-recyclable paper bags to their customers at the point of sale. Per ORD 12-8, amended by ORD 14-29, 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 them to return the compliance forms and indicate how they planned to comply with the ban. Public notices were placed in the Star Advertiser and MidWeek in May. All information pertaining to the ban is also

posted online on Opala.org. On July 1, 2015, City staff began enforcing the ban. The City mailed out a Plastic Bag Ban Compliance Form dated March 7, 2016 with a return date of April 29, 2016. Retail industry feedback based on the returned forms indicates that about 35% of businesses will not provide bags. 28% of businesses indicated they were exempt from the ban. Of the remaining 37% offering bags, 13% are offering paper bags, 7% are offering reusable bags, 3% are offering compostable bags, and 15% are offering some combination of the three types of allowable bags. Businesses are required to submit annual compliance information to verify their compliance with the ban. The ban was amended by ORD 17-37, in 2017 to require businesses to charge a minimum of 15 cents per bag for reusable, recyclable paper or compostable bags to customers at the point of sale, effective July 1, 2018. Beginning January 1, 2020, compostable bags were banned and plastic film bags were no longer considered to be reusable bags. The ban was amended by Ordinance 19-30 changing the definition of "plastic" and amending the definitions for "plastic checkout bag" and "plastic film bag". This ordinance also bans polystyrene foam food ware, disposable plastic service ware and disposable plastic food ware. Ordinance 19-30 will take effect on January 1, 2021.

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 annual events such as Tour de Trash. Source reduction will be another component to add to our Public education program.

   Composting workshops – Composting workshops presented by City staff have been reinstated as part of the City's public education program. The workshop teaches residents to manage green waste at home by utilizing the green cart for large type green waste such as large diameter branches and to compost, aerobically, the grass trimmings, leaves and small diameter branches. The City is also gathering information to provide food waste composting through the use of worms called vermiculture and beneficial microbes with the Bokashi method.

   Recycling education in the schools -- Recycling education shows presented by the Honolulu Theatre for Youth (HTY) combined with classroom activity books educate our youth to become expert recyclers and encourage them to support their family to properly sort their waste at home. Every year, the program reaches approximately 20,000 students and teachers. The tenth 2019-20 season included an "Opala Remix", a recycling performance workshop type show at local schools concluded in late February. Due to the large demand, additional shows were added to expand the educational outreach. The program ended prior to the COVID-19 emergency declaration ordered in late March.

FUNDING ARRANGEMENTS

The following funding arrangements for the landfill and alternate technologies have been requested and approved for the Fiscal Year 2021 Capital Improvements Budget:

- Project #2010046 Oahu Sanitary Landfill (District Boundary Amendment for current landfill site and planning for future landfill site) $501,000.

- Project #2014052 Leeward Refuse Collection Baseyard and Convenience Center (Future baseyard and convenience center) $7,502,000.

- Project #2018050 Solid Waste to Energy Facility (H-POWER) Conversion Technologies (H-POWER ash reuse facility) $15,002,000.

- Project #2014065 Solid Waste to Energy Facility (H-POWER) Improvements (improvements and refurbishment projects for the H-POWER facility) $8,003,000.

CONCLUSION

The foregoing report is submitted in accordance with reporting requirements set forth in the LUC Order dated November 1, 2019. 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 17 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.

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.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 768-3486 • FAX: (808) 768-3487 • WEBSITE: http://envhonolulu.org

KIRK CALDWELL
MAYOR

LORI M.K. KAHIKINA, P.E.
DIRECTOR

TIMOTHY A. HOUGHTON
DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RH 21-017

December 9, 2020

RETURN RECEIPT REQUESTED
7015 0640 0003 7044 1383

Mr. Jonathan Likeke Scheuer, Chair
Land Use Commission
Department of Business, Economic Development & Tourism
State of Hawaii
235 South Beretania Street, Room 406
Honolulu, Hawaii 96813

RETURN RECEIPT REQUESTED
7015 0640 0003 7044 1390

Mr. Arthur D. Challacombe, Chair
Planning Commission
c/o Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

LAND USE COMMISSION
STATE OF HAWAII
2020 DEC 17 A 9:39

Dear Messrs. Scheuer and Challacombe:

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

In accordance with the November 1, 2019 State Land Use Commission Order Approving with Modifications the City and County of Honolulu Planning Commission's Recommendation to Approve Special Use Permit, the attached Second Semi-Annual Report is submitted for your information. This report covers the period from May 2020 through October 2020, unless otherwise stated in the report.

EXHIBIT "A8"

The report is being concurrently submitted to the Planning Commission and Land Use Commission.

Sincerely,

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

Attachment

cc: Kamilla Chan - COR

SECOND SEMI-ANNUAL REPORT

STATUS OF ACTIONS TAKEN TO COMPLY WITH THE STATE LAND USE COMMISSION'S ORDER DATED NOVEMBER 1, 2019
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

December 2020

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PREFACE

This report was prepared in accordance with the State of Hawaii Land Use Commission's ("LUC") Order Approving With Modifications the City and County of Honolulu Planning Commission's Recommendations to Approve a Special Use Permit, dated November 1, 2019 ("LUC Order"). A copy of the LUC Order is available on the LUC's website at https://luc.hawaii.gov/wp-content/uploads/2019/11/SP09-403-final-FOFCOLDO-2019.pdf.

Under Condition No. 7 of the LUC Order, the Applicant (Department of Environmental Services, City and County of Honolulu, hereinafter "ENV") shall provide semi-annual reports to the Planning Commission of the City and County of Honolulu ("Planning Commission") and the LUC regarding the following:

a) The status of the efforts to identify and develop a new landfill site on Oahu,

b) The WGSL's operations, including gas monitoring,

c) ENV's compliance with the conditions imposed herein,

d) The Landfill's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the landfill,

e) The City's efforts to use alternative technologies,

f) The extent to which waste is being diverted from the landfill and

g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the landfill.

This is the second semi-annual report submitted in accordance with Condition No. 7 and covers the period from May 2020 through October 2020, or as otherwise stated.

STATUS OF IDENTIFYING AND DEVELOPING NEW LANDFILL SITES ON OAHU

1. General

Condition No. 5 of the LUC Order requires that, by no later than December 31, 2022, ENV shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, ENV shall provide written notice to the Planning Commission and the LUC.

2. Current Status

The City has been engaged in an ongoing effort to identify a landfill site. Condition 4 of the prior LUC Order in Docket No. SP09-403, which was certified on October 22, 2009 ("2009 LUC Order"), stated:

"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."

In accordance with Condition 4 of the 2009 LUC Order, the Landfill Advisory Committee (LAC) met in 2011 and 2012, and completed its final report on September 25, 2012. All committee meetings were open to the public and to public comment. In the final report, 11 potential sites were identified and ranked based on community criteria. Handouts provided to the LAC, the Group Memory of each meeting, and the final report are posted online at www.opala.org.

The City retained a consultant to further review and analyze the sites based on technical and engineering considerations. The report, "Assessment of Municipal Solid Waste Handling Requirements for the Island of Oahu", was completed in November 2017 and is available online at www.opala.org.

The passage of SB 2386 has reduced the number of potential future landfill sites to four (Keaau, Upland Kahuku 1 and Upland Pupukea 1 and 2). SB 2386 prohibits the construction, modification, or expansion of waste disposal facilities without first establishing a buffer zone of no less than one-half mile around the waste or disposal facility. The active area of WGSL is in compliance with this requirement.

Funding has been requested and approved to begin planning for siting a new landfill based on the results of these reports. See section on Funding Arrangements in this report.

3. District Boundary Amendment

A District Boundary Amendment application is being prepared to change the zoning of the WGSL site from Agricultural to Urban. ENV is following the requirements of the Hawaii Revised Statutes Chapter 343 and will determine whether an environmental assessment or supplemental or new environmental impact statement is required before submitting the DBA application. At this time, the environmental review process is expected to take at least one year to complete.

4. Integrated Solid Waste Management Plan

Hawaii Revised Statutes (HRS) Section 342G-24 requires each county to submit revised integrated solid waste management plans every 10 years with an interim status report submitted five years after every submission of a revised plan. The City has completed the most recent Integrated Solid Waste Management Plan, dated November 2019. The plan was completed after Solid Waste Advisory Committee meetings, DOH review, and a public comment period. Comments from each step were incorporated. The Plan has been posted online at www.opala.org.

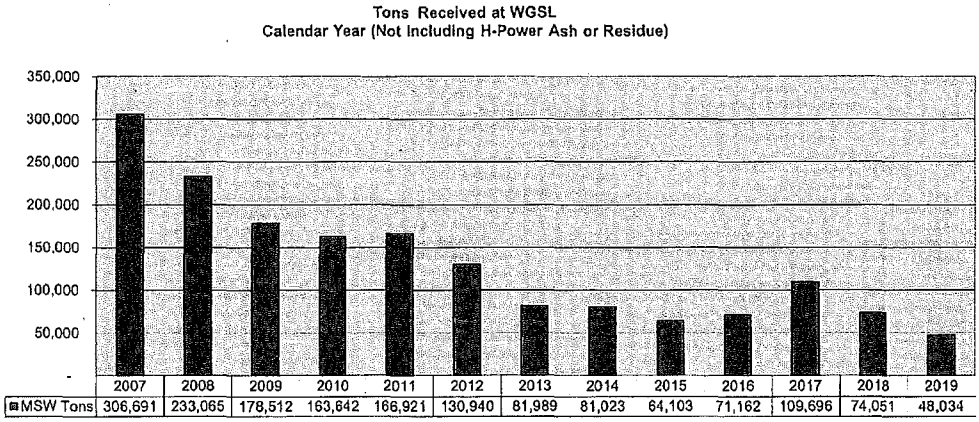
STATUS OF LANDFILL OPERATIONS

1. Tonnage

Over the period beginning May 1, 2020 through October 31, 2020, the WGSL received the following amounts of material:

H-POWER Ash.....	71,019 tons
H-POWER Residue.....	20,854 tons
Municipal Solid Waste (MSW).....	25,391 tons

The following graph illustrates the reduction of MSW delivered to the landfill generally as a result of diverting more waste to H-POWER. Note that the increase in MSW landfilled in 2017 was due to major refurbishment of the processing lines at H-POWER, a once in 30-year project. The 2020 tonnage is currently projected to be around 60,000 tons.



2. Remaining Capacity

As of March 5, 2020 (the date of the last aerial survey), WGSL has 838,888 cubic yards of MSW and 3,997,451 cubic yards of ash airspace remaining. Using the average fill rates and airspace utilization between March 15, 2019 and March 5, 2020 (time between surveys), WGSL has approximately 15 years of combined MSW and ash life remaining or would reach capacity in the year 2035. Note that this estimate does not consider the impact from PVT Landfill's potential closure and that advances in technology and additional landfill diversion, discussed further in this report, could reduce the City's use of WGSL, thereby slowing the rate of landfilling and delaying the date upon which it will reach capacity.

3. Current Status of WGSL

Activities conducted during the reporting period include MSW landfilling in Cells E-5, E-6 and E-7 and ash landfilling in Cells E-8 and E-9.

4. Impact of Potential PVT Landfill Closure

PVT Landfill has informed haulers that due to the passage of SB 2386, PVT will no longer be an option for disposal of asbestos after January 1, 2020. ENV is receiving numerous concerns and comments from the public asking if WGSL is an option for disposing asbestos. ENV is evaluating alternate asbestos disposal options and characterizing this waste stream. WGSL is permitted to accept asbestos but has not been due to PVT being the primary option. To prepare WGSL for accepting asbestos, the DOH operations plan is being updated and NESHAP requirements are being followed for employee training and signage. Alternate but significantly more costly disposal options include consolidating at WGSL or a private environmental contractor and shipping to a mainland landfill. The Revised Ordinances of Honolulu Chapter 9 should also be updated to reflect realistic tipping fees and special handling fees at WGSL for asbestos and other special wastes.

5. Gas Monitoring

The gas collection and recovery system at the landfill continues to expand to accommodate landfilling operations while maintaining compliance. New landfill gas collection wells and vacuum lines will be installed in December 2020 to improve collection efficiency.

ENV is also developing a landfill gas-to-energy RFP now that the landfill is close to crossing the threshold for a viable project.

COMPLIANCE WITH CONDITIONS OF ORDER

The LUC approved with modifications the Planning Commission's recommendations to approve a special use permit for WGSL and approved with modifications ENV's applications, subject to 17 conditions. The general description and status of each condition is as follows:

Condition No.	Description
1	**The WGSL shall close by no later than March 2, 2028. The WGSL shall not accept any form of waste after March 2, 2028.** Status: So noted
2	**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.** Status: All applicable permits/approvals have been obtained.
3	**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.** Status: Dust control measures and management plan have been provided for as part of the Solid Waste Management Permit issued by the DOH.
4	**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.** Status: So noted.
5	**By no later than December 31, 2022, the Applicant shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, the Applicant shall provide written notice to the Planning Commission and the LUC.** Status: See section on Status of Identifying and Developing New Landfill Sites on Oahu in this report.

Condition No.	Description
6	**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.** Status: See section on Alternative Technologies in this report.
7	**The Applicant shall provide semi-annual reports to the Planning Commission and the LUC regarding the following: a) The status of the efforts to identify and develop a new landfill site on Oahu, b) The WGSL's operations, including gas monitoring, c) The Applicant's compliance with the conditions imposed herein, d) The Landfill's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the landfill, e) The City's efforts to use alternative technologies, f) The extent to which waste is being diverted from the landfill and g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the landfill.** Status: Subsequent reports will be submitted every 6 months in May and November of each year.
8	**Closure Sequence "A" for the existing landfill cells at WGSL as shown on Exhibit "A12" must be completed, and final cover applied, by December 31, 2012.** Status: Closure Sequence "A" was commenced in June 2012 and the final cover was applied and substantially completed in December 2012.
9	**WGSL 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.** Status: 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.

Condition No.	Description
10	**The Applicant shall coordinate construction of the landfill cells in the expansion area and operation of WGSL 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.** Status: Coordination with HECO will be done to ensure that landfill construction and operations are adequately separated from overhead electrical power lines.
11	**The operations of the WGSL 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.** Status: Revised Ordinances of Honolulu § 21-5.680 is inapplicable to the WGSL as that Property is a public use and said ordinance therefore does not impact operations at WGSL. The operations of the WGSL are in compliance with any and all applicable rules and regulations of the DOH.
12	**The Planning Commission may at any time impose additional conditions when it becomes apparent that a modification is necessary and appropriate.** Status: So noted.
13	**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.** Status: So noted.
14	**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).** Status: Respective notifications will be made prior to termination of the use of the property as a landfill.
15	**The Applicant shall report to the public every three months on the**

Condition No.	Description
	efforts of the City Council and the City Administration in regard to the continued use of the WGSL, including any funding arrangements being considered by the City Council and the City Administration. Status: See Condition No. 16 Status.
16	**The Applicant shall have a public hearing every three months in either Waianae, Maili, or Nanakuli to report on the status of their efforts to either reduce or continue the use of the WGSL.** Status: After November 1, 2019 (the date of the LUC Order), public hearings are being conducted in Nanakuli every 3 months to report on the status of efforts to either reduce or continue the use of the WGSL and the efforts of the City Council and City Administration in regard to the continued use of the WGSL, including any funding arrangements being considered by the City Council and the City Administration. ENV publishes public notice of the public hearings in the newspaper and posts notice on www.opala.org. Summaries of the hearings are posted online at opala.org. During the reporting period, two public hearings were held on July 17, 2020 and October 20, 2020. Due to the COVID-19 Emergency Declarations, the designated meeting site, the Kalanianaole Beach Park in Nanakuli, was closed to the public. The July 17, 2020 public hearing was held at Kapolei Hale instead with an option for the public to participate remotely via the WebEx platform. Due to COVID-19 restrictions, the October 20, 2020 public hearing was held remotely via WebEx. Eight members of the public attended the hearings.
17	**If the landfill releases waste or leachate, the Applicant must immediately a) notify the surrounding community, including the Makakilo/Kapolei/Honokai Hale, Waianae Coast and Nanakuli-Maili Neighborhood Boards, Intervenors Schnitzer Steel Hawaii Corp., Ko Olina Community Association, Maile Shimabukuro and Colleen Hanabusa and b) take remedial actions to clean up the waste and to keep the waste from spreading. Such remedial actions shall include, but shall not be limited to, placing debris barriers and booms at the landfill's shoreline outfall to prevent waste from spreading into the ocean.** Status: So noted.

REGULATORY COMPLIANCE

1. 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 by DOH later in 2020. New cell construction and drainage improvements are complete.

During the reporting period, there was one incident of note that was self-reported to DOH and has not resulted in a Notice of Violation. On October 27, 2020, the landfill reported to DOH that due to heavy rainfall events, several leachate sumps were beyond the compliance level (note that the compliance level is well below the ground surface and there was no spill). This is typical after heavy rainfall. Per the SOP, additional leachate pumping was dispatched as needed to catch up. On the same day, DOH Clean Water Branch conducted a compliance inspection of the landfill. The stormwater systems are separate from the leachate collection systems and operated as designed and in compliance with the permits and Consent Decree.

2. Consent Decree

The City and Waste Management of Hawaii (WMH), the landfill operator, reached a Settlement Agreement with the U.S. Environmental Protection Agency (EPA) and DOH over alleged violations of the Clean Water Act and State law. The alleged violations arose primarily from storm events that occurred in the winter of 2010-2011, during construction of the WGSL's western diversion drainage system. The EPA and DOH alleged that following the large rain storms the City and WMH violated the Clean Water Act by discharging pollutants without National Pollutant Discharge Elimination System Permit authorization and by discharging pollutants in storm water in violation of the terms of the Notice of General Permit Coverage for Industrial Stormwater issued to the City.

On July 3, 2019, the U.S. District Court for the District of Hawaii entered the consent decree in United States of America and State of Hawaii Department of Health v. Waste Management of Hawaii, Inc. and City and County of Honolulu, Case No. 1:19-cv-00224.

In accordance with the consent decree, the City paid a civil penalty of $62,500 to the United States and $62,500 in lieu of a civil penalty to the state Department of Land

and Natural Resources Division of Aquatic Resources. Similarly, WMH paid $150,000 to each entity.

Also in accordance with the consent decree, the City and WMH implemented enhancements to the landfill's western diversion drainage system, revised the facility's stormwater pollution control plan, and applied for an individual stormwater permit for WGSL. DOH CWB is reviewing the permit application. The City and WMH continue to comply with the detention basin operating and monitoring parameters set forth in the consent decree.

ALTERNATIVE TECHNOLOGIES AND LANDFILL DIVERSION

1. H-POWER

The H-POWER waste-to-energy facility, operated by Covanta, continues to process over 725,000 tons of municipal solid waste each year. The facility has operated reliably for over 30 years and has disposed of about 19,500,000 tons of municipal solid waste, generating in excess of $55,000,000 annual net revenues from the sale of electricity, recovered metals and tipping fees, and avoided the importation of about 19,500,000 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 April 2, 2013. It 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, and other efforts to divert waste from the landfill, H-POWER now plays an even larger role in reducing waste disposal 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 the 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 is not accepted at H-POWER and will continue to be disposed of at the landfill.

c. Tires

H-POWER's solid waste management permit issued by DOH allows acceptance of used auto tires collected by the City, including refuse collection, convenience centers and illegal dumping up to 400 tires per day or 65,000 tires per year.

d. In-Feed Waste Processing Improvements and Baling

ENV and Covanta are planning in-feed waste processing improvements to the Refuse Derived Fuel (RDF) Waste Processing Facility that will include a mobile baling system. The project will allow processing of bulky waste into RDF. The mobile baler will provide flexibility to store waste during extended maintenance outages. The baled waste would be stored and processed later, further reducing diversion of waste to the landfill. The equipment has arrived and will be installed, tested and commissioned by February 2021.

e. Bulk Loads of Food Waste

Since March 1, 2017, bulk loads of commercially-generated spoiled food have been diverted from WGSL.

2. Ash, Process Residue and Auto Shredder Residue (ASR)

The process residue generated by H-POWER was reduced by 50% after the trommel refurbishment project was completed in late 2017.

An ash and ASR recovery and recycling project is in the process of being awarded. This project, when permitted and built, has the potential to diverted 60-80% of the H-POWER ash that is currently being disposed at WGSL.

Approximately 30,000 tons per year of ASR is disposed at WGSL. Although ASR was envisioned to be diverted to H-POWER, evaluation of ASR test data has concluded that the high Fluorine and Chlorine content of the material can be extremely harmful to the boiler. The matter is pending further evaluation and possible testing. The ash and ASR project considers ASR processing as a potential future option.

3. Plasma Arc Gasification

There are currently no operating commercial-scale plasma arc gasification facilities in North America. The Ottawa, Canada and St. Lucie County, Florida projects have both failed and are not active. Plasma arc technology is facing major obstacles including: inability to scale up to commercial-scale, excessively high cost, inability to obtain financing and regulatory permits, excessively high amount of power purchased and imported from the utility to power the plasma torches, and limited life of the plasma shell liner. Until these challenges are resolved, plasma arc technology should not be considered for Honolulu.

4. Sludge Re-use

Further processing and reuse of sludge avoids the need to landfill this waste stream. Laie Wastewater Treatment Plant (WWTP) converts green waste mixed with sewage sludge into compost by using the windrow process. Sand Island WWTP processes sewage sludge into fertilizer pellets using the Synagro process. Please see table below summarizing annually the percentages of Sand Island WWTP sludge that was reused and landfilled, respectively. Note that there are times, especially during 2016, when the farms experienced heavy rains and were not accepting the pellets.

Year	Reused %	Landfill %
2014	93%	7%
2015	97%	3%
2016	89%	11%
2017	94%	6%
2018	94%	6%
2019	91%	9%

4. Materials Recycling

To present a complete waste flow picture for Oahu, the most current data available is for calendar year 2019. Although waste to the landfill and HPOWER is tracked every month by ENV, recycling data is provided by commercial recycling companies that are surveyed annually. Recycling data for 2019 was gathered and compiled during the first half of 2020; updated charts and analysis are posted below. Recycling data for 2019 is posted on Opala.org.

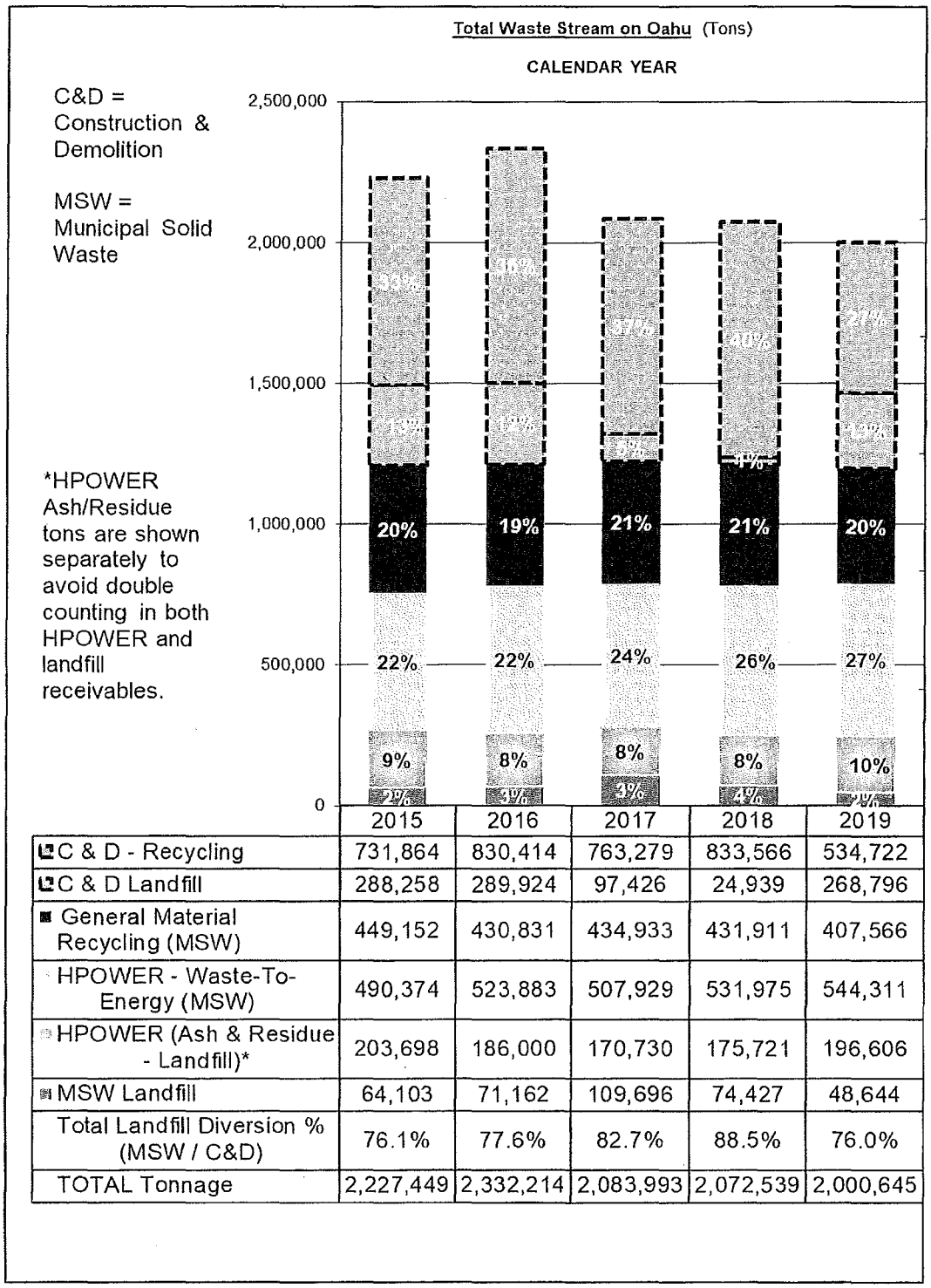
The island's waste data is presented in two charts:

1. TOTAL WASTE which includes Municipal Solid Waste (MSW) and Construction and Demolition (C&D) material, processed through recycling, waste-to-energy or landfilling; and
2. MSW only, processed through recycling, waste-to-energy or landfilling.

Both charts present data for the most recent five (5) calendar years (2015-2019). Moreover, this data shows how Oahu's waste has been diverted from the landfill through recycling and waste-to-energy.

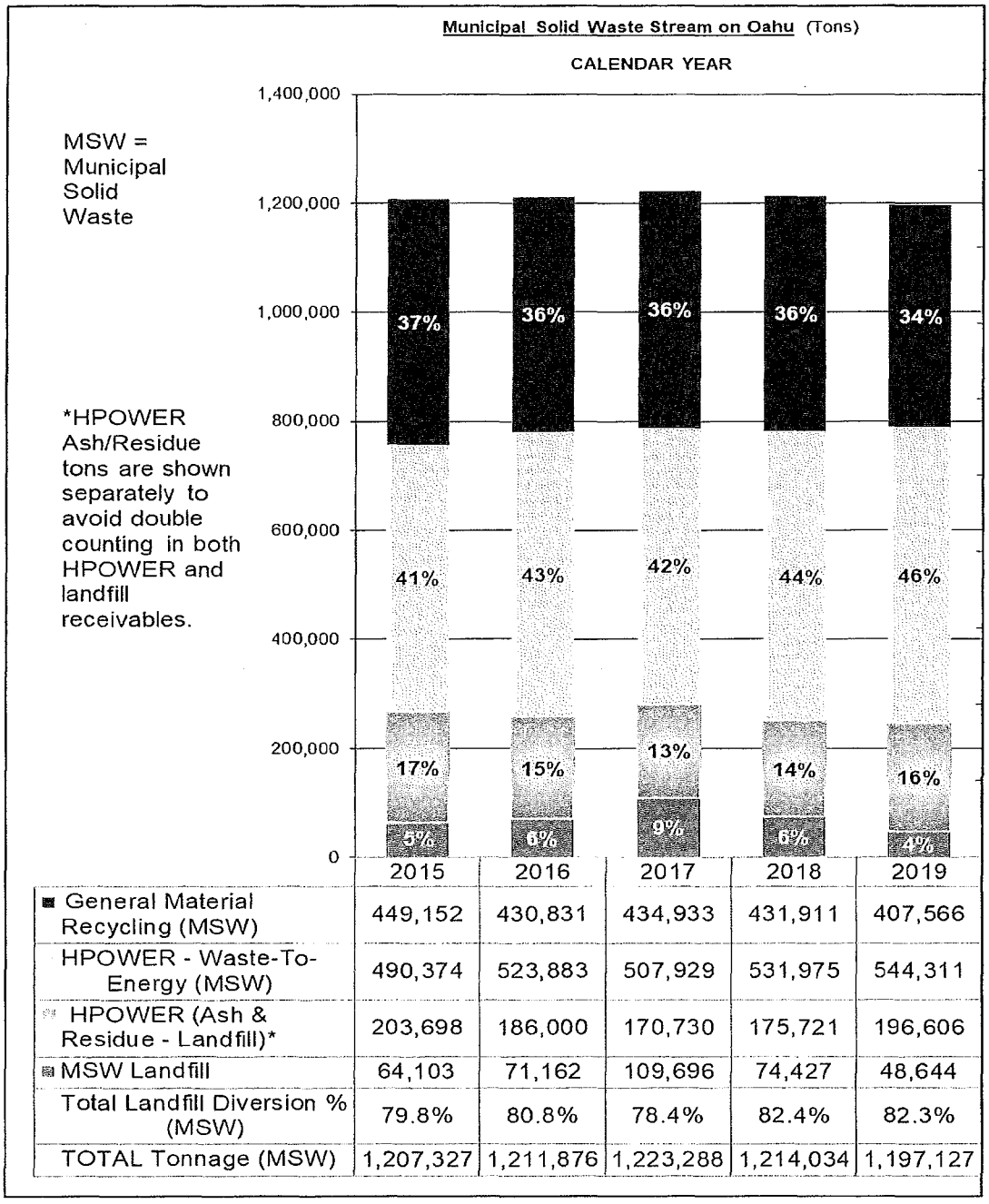
TOTAL WASTE data is presented in the chart below. For 2019, rates for C&D material recycling and disposal decreased overall from the 2018, while recycling and waste-to--energy combined to divert nearly 76% of waste from the landfill.

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 (C&D) waste only.



	2015	2016	2017	2018	2019
C & D - Recycling	731,864	830,414	763,279	833,566	534,722
C & D Landfill	288,258	289,924	97,426	24,939	268,796
General Material Recycling (MSW)	449,152	430,831	434,933	431,911	407,566
HPOWER - Waste-To-Energy (MSW)	490,374	523,883	507,929	531,975	544,311
HPOWER (Ash & Residue - Landfill)*	203,698	186,000	170,730	175,721	196,606
MSW Landfill	64,103	71,162	109,696	74,427	48,644
Total Landfill Diversion % (MSW / C&D)	76.1%	77.6%	82.7%	88.5%	76.0%
TOTAL Tonnage	2,227,449	2,332,214	2,083,993	2,072,539	2,000,645

MSW ONLY data is presented in the chart below. Robust recycling and waste-to-energy rates continue to contribute to the steady decline of MSW tonnage going to the Waimanalo Gulch Sanitary Landfill. Considering MSW only and landfill diversion specific to the WGSL, the landfill diversion rate achieved through recycling and waste-to-energy is nearing 76%, and the general material recycling rate is dropped to 34% mostly due to the drop in general recycling tonnage. Landfill diversion rates for the most recent five (5) years at WGSL are charted below, allowing for a better visual assessment of the data. Important to note that of the 20% of material landfilled at WGSL in 2019, only 4% was MSW, with the rest consisting of ash and noncombustible residue from HPOWER.



	2015	2016	2017	2018	2019
General Material Recycling (MSW)	449,152	430,831	434,933	431,911	407,566
HPOWER - Waste-To-Energy (MSW)	490,374	523,883	507,929	531,975	544,311
HPOWER (Ash & Residue - Landfill)*	203,698	186,000	170,730	175,721	196,606
MSW Landfill	64,103	71,162	109,696	74,427	48,644
Total Landfill Diversion % (MSW)	79.8%	80.8%	78.4%	82.4%	82.3%
TOTAL Tonnage (MSW)	1,207,327	1,211,876	1,223,288	1,214,034	1,197,127

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 407,000 tons in 2019. Recycling of construction and demolition (C&D) materials, such as concrete, rock and asphalt, contributed an additional 534,722 tons to the recycling rates, for a total of almost 1.0M tons recycled for 2019. 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 since 2015 due ongoing major projects across the island. In 2019, there was a significant drop in C&D Recycling due to decrease in construction and the stored recyclable material stored on site.

Yearly Recycling Rates (tons)

Year	General Material Recycling	C&D Recycling	Total Recycled
2019	407,566	534,722	942,288
2018	431,911	868,617	1,300,528
2017	434,933	763,279	1,198,212
2016	430,831	830,414	1,261,245
2015	449,153	731,865	1,181,018
2014	475,953	401,335	877,286
2013	477,011	257,287	734,298
2012	487,159	179,906	667,065
2011	490,061	181,087	671,148
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

Material Type	Amount in tons
PAPER	
Corrugated Cardboard	40,955
Newspaper	11,595
Office Paper	6,432
Other Paper	1,115
METALS	
Ferrous (includes autos)	138,675
Non-Ferrous (includes aluminum)	12,440
GLASS	13,647
PLASTIC	4,996
TIRES	7,784
AUTO BATTERIES	7,652
ELECTRONIC SCRAP	1,210
GREEN WASTE (yard trimmings)	103,429
WOOD WASTE/PALLETS	6,6067
CONSTRUCTION & DEMOLITION (rock, concrete, asphalt)	537,772
FOOD WASTE	31,947
OTHER REUSE (Goodwill, Salvation Army)	19,621
TOTAL	942,288

The City's efforts to increase residential recycling rates have continued with its ongoing efforts to educate residents about the value and benefits of its three cart curbside program, and the continued promotion and rejuvenation of its condominium recycling assistance program. Additionally, the City requires commercial sector recycling through mandatory laws established by City ordinance, and provides assistance to businesses to setup and expand their recycling programs.

a. Curbside Recycling – Curbside recycling participation remains strong and material recovery rates are increasing every year. ENV completed the final phase expansion of the fully-automated 3-cart curbside recycling program in May 2010. There are currently 170,000 homes participating in the program, capturing material at a rate of 23,000 tons of mixed recyclables and 75,000 tons of green waste per year. Increased public experience with identifying and sorting recyclables is producing higher results for the City's curbside recycling program. The program continues to be evaluated to identify strategies for improving participation and efficiencies.

b. Multi-Material Recycling Centers – Recycling is available to those without curbside collection service. There are two City recycling drop-off locations in Haleiwa, one fronting its Waialua Base Yard (Emerson Rd) and the other at its Kawailoa Transfer Station. Both locations feature several 96-gallon blue carts, complete with instructional signage and stickers for the community to

use. All blue cart recyclables are acceptable, including plastics (1 & 2), glass bottles and jars, metal cans, newspaper, paper bags, corrugated cardboard and white and colored office paper.

c. Condominium Recycling -- 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 electronic 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 most recent four State legislative sessions (2012, 2013, 2014, and 2015). In 2015 the law was amended to require electronic device manufacturers to establish drop-off locations for e-waste and prohibited 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 policy established in the mid 1990's, which requires office buildings to recycle office paper, bars/restaurants to recycle glass and a variety of food operations to recycle food waste. It is no longer mandatory for ADF glass to be sorted by the liquor establishments but the recyclers still receive ADF glass through their commercial accounts. The City suspended the ADF portion of the glass relating to the glass ordinance but the City still receives the State Subsidy for ADF glass that the recyclers are collecting. Disposal site bans/restrictions divert materials from landfill and H-POWER, including green waste, cardboard, metals, tires, auto batteries, and 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 Ordinances – As of July 1, 2015, businesses are prohibited from providing plastic checkout bags and non-recyclable paper bags to their customers at the point of sale. Per ORD 12-8, amended by ORD 14-29, 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 them to return the compliance forms and indicate how they planned to comply with the

ban. Public notices were placed in the Star Advertiser and MidWeek in May. All information pertaining to the ban is also posted online on Opala.org. On July 1, 2015, City staff began enforcing the ban. The City mailed out a Plastic Bag Ban Compliance Form dated March 7, 2016 with a return date of April 29, 2016. Retail industry feedback based on the returned forms indicates that about 35% of businesses will not provide bags. 28% of businesses indicated they were exempt from the ban. Of the remaining 37% offering bags, 13% are offering paper bags, 7% are offering reusable bags, 3% are offering compostable bags, and 15% are offering some combination of the three types of allowable bags. Businesses are required to submit annual compliance information to verify their compliance with the ban. The ban was amended by Ordinance 17-37, in 2017 to require businesses to charge a minimum of 15 cents per bag for reusable, recyclable paper or compostable bags to customers at the point of sale, effective July 1, 2018. Beginning January 1, 2020, compostable bags were banned and plastic film bags were no longer considered to be reusable bags. The ban was amended by Ordinance 19-30 changing the definition of "plastic" and amending the definitions for "plastic checkout bag" and "plastic film bag".

g. Disposable Food Ware Ordinance – Ordinance 19-30 is effective on January 1, 2021 and has been termed the Disposable Food Ware Ordinance or DFWO. The intent of the DFWO is to protect human safety and welfare and to improve environmental quality on the island, in the neighboring marine environment and globally. The DFWO affects all food vendors and businesses operating within the City. The DFWO amends the Oahu Plastic Bag Ban and restricts the use and sale of polystyrene foam food ware, disposable plastic food ware and disposable plastic service ware. It also dictates when disposable service ware may be provided.

h. 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 annual events such as Tour de Trash. There has been an increase in social media participation to assist with the public education program. Source reduction will be another component to add to our Public education program.

   Composting workshops – Composting workshops presented by City staff have been reinstated as part of the City's public education program. The workshop teaches residents to manage green waste at home by utilizing the green cart for large type green waste such as large diameter branches and to compost, aerobically, the grass trimmings, leaves and small diameter branches. The City is also gathering information to provide food waste composting through the use of worms called vermiculture and beneficial microbes with the Bokashi method.

i. Recycling education in the schools -- Recycling education shows presented by the Honolulu Theatre for Youth (HTY) combined with classroom activity books educate our youth to become expert recyclers and encourage them to support their family to properly sort their waste at home. Every year, the program reaches approximately 20,000 students and teachers. The tenth 2019-20, season included an "Opala Remix", a recycling performance workshop type show at local schools concluded in late February. Due to the large demand, additional shows were added to expand the educational outreach. The program ended prior to the COVID-19 emergency declaration ordered in late March.

FUNDING ARRANGEMENTS

The following funding arrangements for the landfill and alternate technologies have been requested and approved for the Fiscal Year 2021 Capital Improvements (CIP) Budget:

- Project #2010046 Oahu Sanitary Landfill (District Boundary Amendment for current landfill site and planning for future landfill site) $501,000.
- Project #2014052 Leeward Refuse Collection Baseyard and Convenience Center (Future baseyard and convenience center) $7,502,000.
- Project #2018050 Solid Waste to Energy Facility (H-POWER) Conversion Technologies (H-POWER ash reuse facility) $15,002,000.
- Project #2014065 Solid Waste to Energy Facility (H-POWER) Improvements (improvements and refurbishment projects for the H-POWER facility) $8,003,000.

The following funding arrangements have been requested for the Fiscal Year 2022 CIP budget:

- Project #2018050 Solid Waste to Energy Facility (H-POWER) Conversion Technologies (H-POWER ash reuse facility) $22,000,000.
- Project #2014065 Solid Waste to Energy Facility (H-POWER) Improvements (improvements and refurbishment projects for the H-POWER facility) $8,003,000.

CONCLUSION

The foregoing report is submitted in accordance with reporting requirements set forth in the LUC Order dated November 1, 2019. 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 17 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.

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.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
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RICK BLANGIARDI
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WESLEY T. YOKOYAMA, P.E.
DIRECTOR

MICHAEL O'KEEFE
DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
RH 22-001

July 14, 2021

RETURN RECEIPT REQUESTED
7018 0680 0001 2352 1541

Mr. Jonathan Likeke Scheuer, Chair
Land Use Commission
Department of Business, Economic Development & Tourism
State of Hawaii
235 South Beretania Street, Room 406
Honolulu, Hawaii 96813

LAND USE COMM
STATE OF HA
2021 JUL 22 A 10:33

RETURN RECEIPT REQUESTED
7018 0680 0001 2352 1558

Mr. Brian Lee, Chair
Planning Commission
c/o Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Messrs. Scheuer and Challacombe:

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

In accordance with the November 1, 2019 State Land Use Commission Order Approving with Modifications the City and County of Honolulu Planning Commission's Recommendation to Approve Special Use Permit, the attached Third Semi-Annual Report is submitted for your information. This report covers the period from November 1, 2020 through April 30, 2021, unless otherwise stated in the report.

The report is being concurrently submitted to the Planning Commission and Land Use Commission.

Sincerely,

Wesley T. Yokoyama, P.E.
Director

Attachment

cc: Kamilla Chan - COR

EXHIBIT "A9"

THIRD SEMI-ANNUAL REPORT

STATUS OF ACTIONS TAKEN TO COMPLY WITH THE STATE LAND USE COMMISSION'S ORDER DATED NOVEMBER 1, 2019
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

July 2021

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PREFACE

This report was prepared in accordance with the State of Hawaii Land Use Commission's ("LUC") Order Approving With Modifications the City and County of Honolulu Planning Commission's Recommendations to Approve a Special Use Permit, dated November 1, 2019 ("LUC Order"). A copy of the LUC Order is available on the LUC's website at https://luc.hawaii.gov/wp-content/uploads/2019/11/SP09-403-final-FOFCOLDO-2019.pdf.

Under Condition No. 7 of the LUC Order, the Applicant (Department of Environmental Services, City and County of Honolulu, hereinafter "ENV") shall provide semi-annual reports to the Planning Commission of the City and County of Honolulu ("Planning Commission") and the LUC regarding the following:

a) The status of the efforts to identify and develop a new landfill site on Oahu,

b) The Waimanalo Gulch Sanitary Landfill's ("WGSL") operations, including gas monitoring,

c) ENV's compliance with the conditions imposed herein,

d) The WGSL's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the WGSL,

e) The City's efforts to use alternative technologies,

f) The extent to which waste is being diverted from the WGSL and

g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the WGSL.

This is the third semi-annual report submitted in accordance with Condition No. 7 and covers the period from November 1, 2020 through April 30, 2021, or as otherwise stated.

STATUS OF IDENTIFYING AND DEVELOPING NEW LANDFILL SITES ON OAHU

1. General

Condition No. 5 of the LUC Order requires that, by no later than December 31, 2022, ENV shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, ENV shall provide written notice to the Planning Commission and the LUC.

2. Current Status

The City has been engaged in an ongoing effort to identify a landfill site. Condition 4 of the prior LUC Order in Docket No. SP09-403, which was certified on October 22, 2009 ("2009 LUC Order"), stated:

"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."

In accordance with Condition 4 of the 2009 LUC Order, the Landfill Advisory Committee ("LAC") met in 2011 and 2012, and completed its final report on September 25, 2012. All committee meetings were open to the public and to public comment. In the final report, 11 potential sites were identified and ranked based on community criteria. Handouts provided to the LAC, the Group Memory of each meeting, and the final report are posted online at www.opala.org.

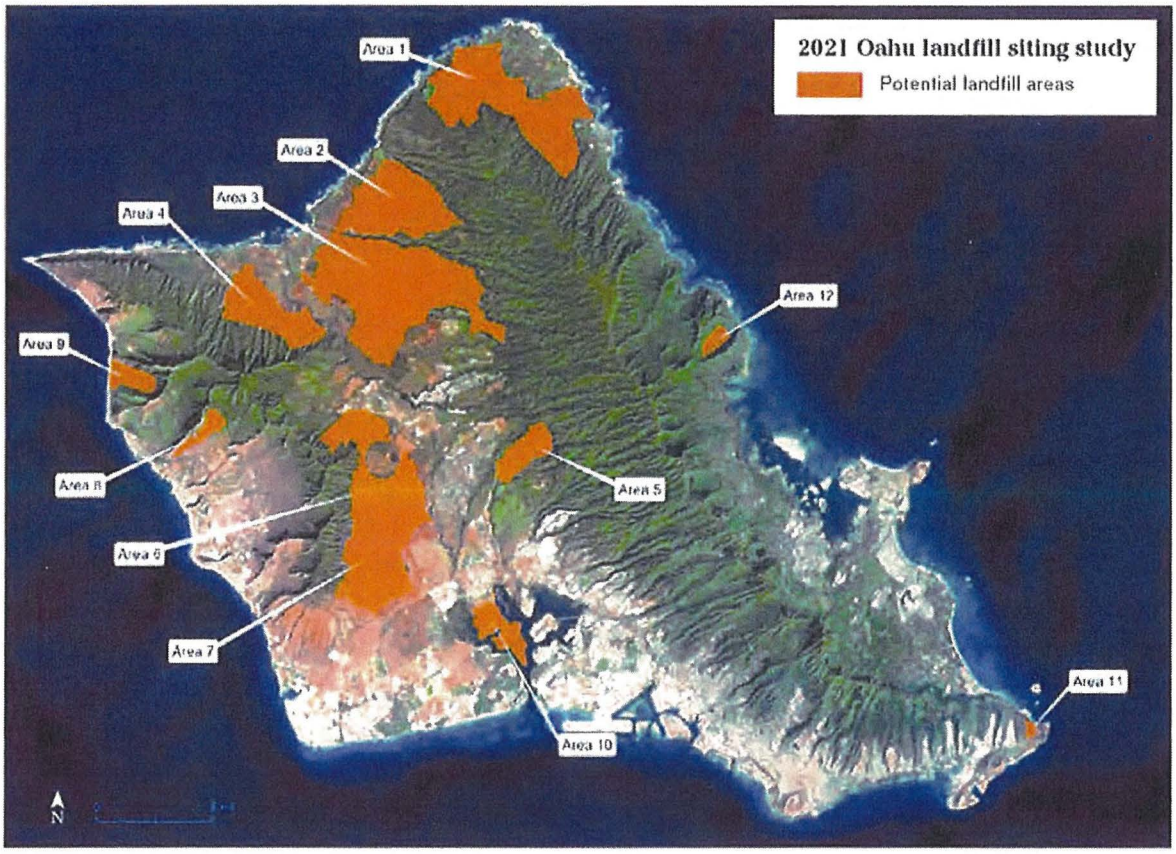
The City retained a consultant to further review and analyze the sites based on technical and engineering considerations. The report, "Assessment of Municipal Solid Waste Handling Requirements for the Island of Oahu", was completed in November 2017 and is available online at www.opala.org.

The passage of Act 73 (2020) prohibits the construction, modification, or expansion of waste disposal facilities without first establishing a buffer zone of no less than one-half mile around the waste or disposal facility. Although not required, the active area of WGSL is in compliance with this requirement.

An initial review of the available sites in Fall 2020 reduced the number of potential future landfill sites to four (Keaau, Upland Kahuku 1 and Upland Pupukea 1 and 2) based on sites short-listed in the 2017 landfill siting report. However, additional review in January 2021 determined that a more thorough review and evaluation of new locations island-wide with respect to Act 73 is warranted. The City is currently engaged in completing a review of available locations and is developing a new Mayor's Advisory Committee on Landfill Site Selection.

On April 27, 2021, ENV presented an update on integrated solid waste management and progress towards a future landfill site at a joint City Council meeting. ENV shared a preliminary map showing areas compliant with Act 73 where a landfill could potentially be located. The consultant is further refining the areas with respect to Act 73 and other constraints.

PROGRESS TOWARD FUTURE LANDFILL SITE



3. District Boundary Amendment

In 2020, ENV began preparing an application for a District Boundary Amendment (DBA) to change the zoning of the WGSL site from Agricultural to Urban. ENV also began the environmental review process for the DBA. The EIS and DBA application are not being pursued at this time pending further development of landfill siting activities.

4. Integrated Solid Waste Management Plan

Hawaii Revised Statutes ("HRS") Section 342G-24 requires each county to submit revised integrated solid waste management plans every 10 years with an interim status report submitted five years after every submission of a revised plan. The City has completed the most recent Integrated Solid Waste Management Plan, dated

November 2019. The plan was completed after Solid Waste Advisory Committee meetings, State of Hawaii, Department of Health (DOH) review, and a public comment period. Comments from each step were incorporated. The Plan has been posted online at www.opala.org.

STATUS OF LANDFILL OPERATIONS

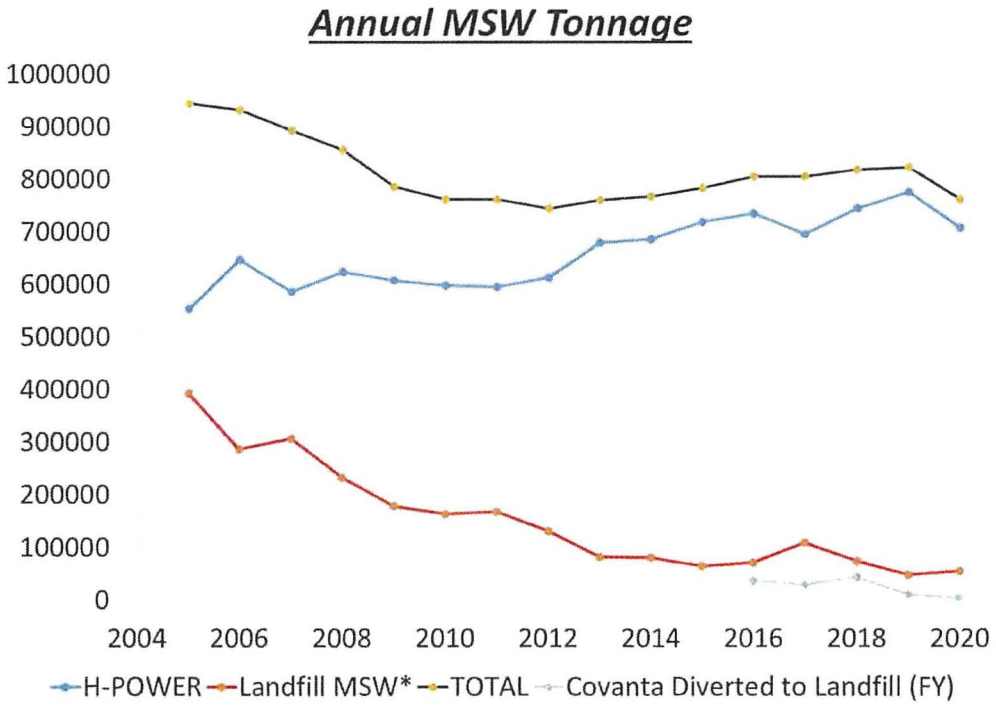
1. Tonnage

Over the period beginning November 1, 2020 through April 30, 2021, the WGSL received the following amounts of material:

H-POWER Ash.....	66,841 tons
H-POWER Residue.....	22,895 tons
Municipal Solid Waste (MSW).....	32,245 tons

The following graph illustrates the reduction of MSW delivered to WGSL (red line) generally as a result of diverting more waste to H-POWER (blue line). Note that the increase in MSW landfilled in 2017 was due to major refurbishment of the processing lines at H-POWER, a once in 30-year project. We are anticipating about 100,000 tons MSW landfilled in 2021, which is about 50,000 tons higher than 2020, due to a once in 6-year major overhaul of H-POWER's turbine-generator set #1 that was completed in May and June 2021.

Future planned projects including a common steam header and second dump condenser are intended to further reduce the amount of MSW diverted to WGSL during H-POWER maintenance outages.



2. Remaining Capacity

As of March 27, 2021 (the date of the last aerial survey), the preliminary data indicates that WGSL has about 4,100,000 cubic yards of airspace remaining. Using the average fill rates and airspace utilization between March 5, 2020 and March 27, 2021 (time between surveys), WGSL has approximately 17 years of combined MSW and ash life remaining or would reach capacity in the year 2038. This estimate does not consider the impact from PVT Landfill's potential closure within the next 5 to 9 years. In addition, this estimate does not consider advances in technology and additional landfill diversion, discussed further in this report, which could reduce the City's use of WGSL, thereby slowing the rate of landfilling and delaying the date upon which it will reach capacity. The March 2021 survey data is being compiled, finalized and will be reported to DOH in the annual operating report due July 31, 2021.

3. Current Status of WGSL

Activities conducted during the reporting period include MSW landfilling in Cells E-5, E-6 and E-7 and ash landfilling in Cells E-8 and E-9.

4. Impact of Potential PVT Landfill Closure

PVT Landfill informed haulers that due to the passage of Act 73, PVT would no longer be an option for disposal of asbestos containing material ("ACM") after January 1, 2021. To provide an on-island option for ACM, WGSL began accepting ACM on one day a week (Wednesdays) as of January 6, 2021.

With PVT unable to proceed with their planned expansion, they are expecting to close within the next 5 to 9 years. The City is drafting C&D waste recycling legislation and permit modifications for H-POWER to be able to accept the wood or combustible fraction. In addition, Chapter 9 of the Revised Ordinances of Honolulu should be amended to include fees that reflect the actual cost of disposal and special handling required for asbestos and other special wastes.

5. Gas Monitoring

The gas collection and recovery system at WGSL continues to expand to accommodate landfilling operations while maintaining compliance. Seven new landfill gas collection wells and vacuum lines were installed in November and December 2020 to improve collection efficiency.

COMPLIANCE WITH CONDITIONS OF ORDER

The LUC approved with modifications the Planning Commission's recommendations to approve a special use permit for WGSL and approved with modifications ENV's applications, subject to 17 conditions. The general description and status of each condition is as follows:

Condition No.	Description
1	**The WGSL shall close by no later than March 2, 2028. The WGSL shall not accept any form of waste after March 2, 2028.** Status: So noted
2	**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.** Status: All applicable permits/approvals have been obtained.
3	**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.** Status: Dust control measures and management plan have been provided for as part of the Solid Waste Management Permit issued by the DOH.
4	**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.** Status: So noted.
5	**By no later than December 31, 2022, the Applicant shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, the Applicant shall provide written notice to the Planning Commission and the LUC.** Status: See section on Status of Identifying and Developing New Landfill Sites on Oahu in this report.

Condition No.	Description
6	**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.** Status: See section on Alternative Technologies in this report.
7	**The Applicant shall provide semi-annual reports to the Planning Commission and the LUC regarding the following: a) The status of the efforts to identify and develop a new landfill site on Oahu, b) The WGSL's operations, including gas monitoring, c) The Applicant's compliance with the conditions imposed herein, d) The Landfill's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the landfill, e) The City's efforts to use alternative technologies, f) The extent to which waste is being diverted from the landfill and g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the landfill.** Status: Each year reports will be submitted to cover the six-month periods of November through April, and May through October.
8	**Closure Sequence "A" for the existing landfill cells at WGSL as shown on Exhibit "A12" must be completed, and final cover applied, by December 31, 2012.** Status: Closure Sequence "A" was commenced in June 2012 and the final cover was applied and substantially completed in December 2012.
9	**WGSL 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.** Status: 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. with the exception of H-POWER ash, which can be received 24 hours a day. Permission to extend hours to accommodate refuse loads during H-POWER outages shall be obtained from DOH on an as-needed basis.

Condition No.	Description
10	**The Applicant shall coordinate construction of the landfill cells in the expansion area and operation of WGSL 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.** Status: Coordination with HECO will be done to ensure that landfill construction and operations are adequately separated from overhead electrical power lines.
11	**The operations of the WGSL 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.** Status: Revised Ordinances of Honolulu § 21-5.680 is inapplicable to the WGSL as that Property is a public use and said ordinance therefore does not impact operations at WGSL. The operations of the WGSL are in compliance with any and all applicable rules and regulations of the DOH.
12	**The Planning Commission may at any time impose additional conditions when it becomes apparent that a modification is necessary and appropriate.** Status: So noted.
13	**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.** Status: So noted.
14	**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).** Status: Respective notifications will be made prior to termination of the use of the property as a landfill.

Condition No.	Description
15	**The Applicant 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 being considered by the City Council and the City Administration.** Status: See Condition No. 16 Status.
16	**The Applicant shall have a public hearing every three months in either Waianae, Maili, or Nanakuli to report on the status of their efforts to either reduce or continue the use of the WGSL.** Status: After November 1, 2019 (the date of the LUC Order), public hearings are being conducted in Nanakuli every 3 months to report on the status of efforts to either reduce or continue the use of the WGSL and the efforts of the City Council and City Administration in regard to the continued use of the WGSL, including any funding arrangements being considered by the City Council and the City Administration. ENV publishes public notice of the public hearings in the newspaper and posts notice on www.opala.org. Summaries of the hearings are posted online at www.opala.org. During the reporting period, two public hearings were held on January 19, 2021 and April 13, 2021. Due to the COVID-19 Emergency Declarations, the designated meeting site, the Kalanianaole Beach Park in Nanakuli, was closed to the public and the public hearings were held remotely via WebEx. A total of at least eight members of the public attended the hearings.
17	**If the landfill releases waste or leachate, the Applicant must immediately a) notify the surrounding community, including the Makakilo/Kapolei/Honokai Hale, Waianae Coast and Nanakuli-Maili Neighborhood Boards, Intervenors Schnitzer Steel Hawaii Corp., Ko Olina Community Association, Maile Shimabukuro and Colleen Hanabusa and b) take remedial actions to clean up the waste and to keep the waste from spreading. Such remedial actions shall include, but shall not be limited to, placing debris barriers and booms at the landfill's shoreline outfall to prevent waste from spreading into the ocean.** Status: So noted.

REGULATORY COMPLIANCE

1. Solid Waste Permit

The final solid waste permit for the proposed lateral expansion was approved by the 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), WGSL 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 by DOH later in 2021. New cell construction and drainage improvements are complete.

During the reporting period, there were two odor complaints received from Ko Olina on February 17, 2021 and April 21, 2021. The investigation of the February 17 complaint did not detect odors at the Ko Olina entrance station or the WGSL fenceline. For the April 21 incident, an odorous load arrived at the gate before the facility opened at 7:00 am. Site staff contacted Honolulu Disposal Service (transporter) and Pacific Biodiesel (generator) and explained the conditions of the permit and the requirement for transporter to arrive at WGSL during the acceptance hours for odorous loads (between 8:30 am and 2:30 pm). Additionally, site management suggested to the transporter and generator to apply an odor suppressant to their material prior to arrival to assist the onsite odor management system and minimize odors. It is imperative for the customer to adhere to the rules of the designated hours of acceptance in order for the facility to manage the odorous loads as intended with the systems in place.

2. Consent Decree

The City and Waste Management of Hawaii ("WMH"), the WGSL operator, reached a settlement with the U.S. Environmental Protection Agency ("EPA") and DOH over alleged violations of the Clean Water Act and State law. The alleged violations arose primarily from storm events that occurred in the winter of 2010-2011, during construction of the WGSL's western diversion drainage system. The EPA and DOH alleged that following the large rain storms the City and WMH violated the Clean Water Act by discharging pollutants without National Pollutant Discharge Elimination System Permit authorization and by discharging pollutants in storm water in violation of the terms of the Notice of General Permit Coverage for Industrial Stormwater issued to the City.

On July 3, 2019, the U.S. District Court for the District of Hawaii entered the consent decree in United States of America and State of Hawaii Department of Health v. Waste Management of Hawaii, Inc. and City and County of Honolulu, Case No. 1:19-cv-00224.

In accordance with the consent decree, the City paid a civil penalty of $62,500 to the United States and $62,500 in lieu of a civil penalty to the state Department of Land and Natural Resources Division of Aquatic Resources. Similarly, WMH paid $150,000 to each entity.

Also in accordance with the consent decree, the City and WMH implemented enhancements to WGSL's western diversion drainage system, revised the facility's stormwater pollution control plan, and applied for an individual stormwater permit for WGSL. DOH Clean Water Branch is reviewing the permit application. The City and WMH continue to comply with the detention basin operating and monitoring parameters set forth in the consent decree.

ALTERNATIVE TECHNOLOGIES AND LANDFILL DIVERSION

1. H-POWER

The H-POWER waste-to-energy facility, operated by Covanta, continues to process over 725,000 tons of municipal solid waste each year. The facility has operated reliably for over 30 years and has disposed of about 19,500,000 tons of municipal solid waste, generating in excess of $55,000,000 annual net revenues from the sale of electricity, recovered metals and tipping fees, and avoided the importation of about 19,500,000 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 April 2, 2013. It enables the facility to process and burn bulky waste that previously had to be disposed at WGSL. With the addition of the third boiler, and other efforts to divert waste from WGSL, H-POWER now plays an even larger role in reducing waste disposal at WGSL.

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 the wastewater treatment plants. The 20,000 tons per year of sludge currently produced by these plants is now being diverted from WGSL to H-POWER. In addition, a corresponding amount of bulky waste, which was required to bulk the sludge at WGSL, 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 is not accepted at H-POWER and will continue to be disposed of at WGSL.

c. Tires

H-POWER's solid waste management permit issued by DOH allows acceptance of used auto tires collected by the City, including refuse collection, convenience centers and illegal dumping up to 400 tires per day or 65,000 tires per year.

d. In-Feed Waste Processing Improvements and Baling

ENV and Covanta are planning in-feed waste processing improvements to the RDF Waste Processing Facility that will include a mobile baling system. The project will allow processing of bulky waste into RDF. The mobile baler will provide flexibility to store waste during extended maintenance outages. The baled waste would be stored and processed later, further reducing diversion of waste to WGSL. The equipment was tested in March 2021 and DOH approval is pending for operation and storing of bales.

e. Bulk Loads of Food Waste

Since March 1, 2017, bulk loads of commercially-generated spoiled food have been diverted from WGSL. ENV is evaluating technologies for the digestion of food waste.

2. Ash, Process Residue and Auto Shredder Residue

The process residue generated by H-POWER was reduced by 50% after the trommel refurbishment project was completed in late 2017.

An ash and auto shredder residue ("ASR") recovery and recycling project was awarded to Covanta Projects LLC. This project, when permitted and built, has the potential to divert 60-80% of the H-POWER ash that is currently disposed at WGSL.

Approximately 30,000 tons per year of ASR is disposed at WGSL. Although ASR was envisioned to be diverted to H-POWER, evaluation of ASR test data has concluded that the high Fluorine and Chlorine content of the material can be extremely harmful to the boiler. The matter is pending further evaluation and possible testing. The ash and ASR project considers ASR processing as a potential future option.

3. Plasma Arc Gasification

There are currently no operating commercial-scale plasma arc gasification facilities in North America. The Ottawa, Canada and St. Lucie County, Florida projects have both failed and are not active. Plasma arc technology is facing major obstacles including: inability to scale up to commercial-scale, excessively high cost, inability to obtain financing and regulatory permits, excessively high amount of power purchased and imported from the utility to power the plasma torches, and limited life of the plasma shell liner. Until these challenges are resolved, plasma arc technology should not be considered for Honolulu.

4. Sludge Re-use

Further processing and reuse of sludge avoids the need to landfill this waste stream. Laie Wastewater Treatment Plant ("WWTP") converts green waste mixed with sewage sludge into compost by using the windrow process. Sand Island WWTP processes sewage sludge into fertilizer pellets using the Synagro process. Since 2014, the average Synagro pellet reuse has been 93% (7% landfilled). Note that there are times, especially during 2016, when the farms experience heavy rains and are not able to accept the pellets.

4. Materials Recycling

To present a complete waste flow picture for Oahu, the most current data available is for calendar year 2019. Although waste to WGSL and H-POWER is tracked monthly by ENV, recycling data is provided by commercial recycling companies that are surveyed annually. Recycling data for 2019 was gathered and compiled during the first half of 2020; updated charts and analysis are posted below. Recycling data for 2019 is posted on www.Opala.org. The City initiated the requests for recycling data for 2020 in the spring of 2021. 2020 data is likely to be posted in August.

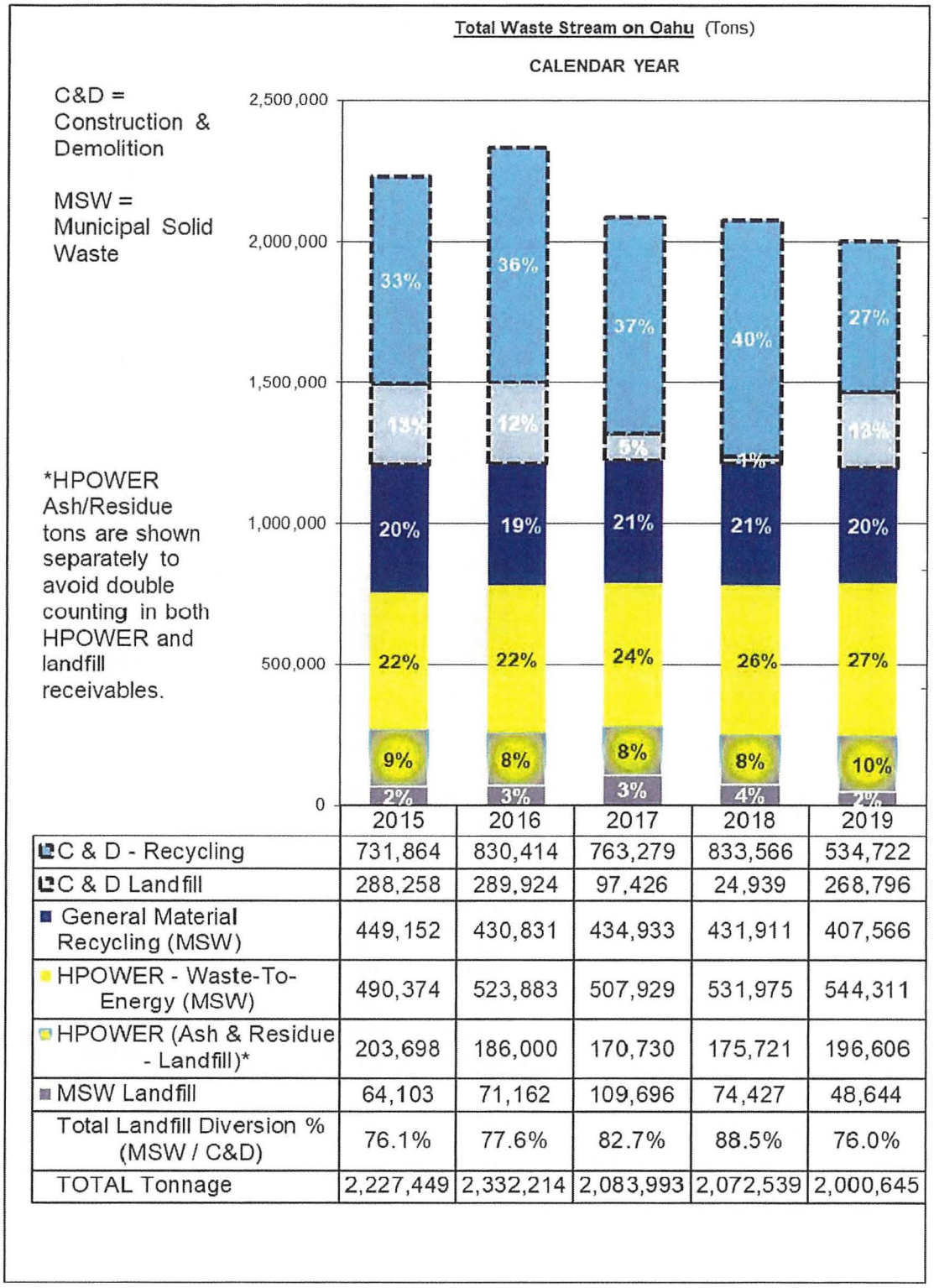
The island's waste data is presented in two charts:

1. TOTAL WASTE which includes Municipal Solid Waste ("MSW") and Construction and Demolition ("C&D") material, processed through recycling, waste-to-energy or landfilling; and
2. MSW only, processed through recycling, waste-to-energy or landfilling.

Both charts present data for the most recent five (5) calendar years (2015-2019). Moreover, this data shows how Oahu's waste was diverted from WGSL through recycling and waste-to-energy.

TOTAL WASTE data is presented in the chart below. For 2019, rates for C&D material recycling and disposal decreased overall from the 2018, while recycling and waste-to--energy combined to divert nearly 76% of waste from landfills.

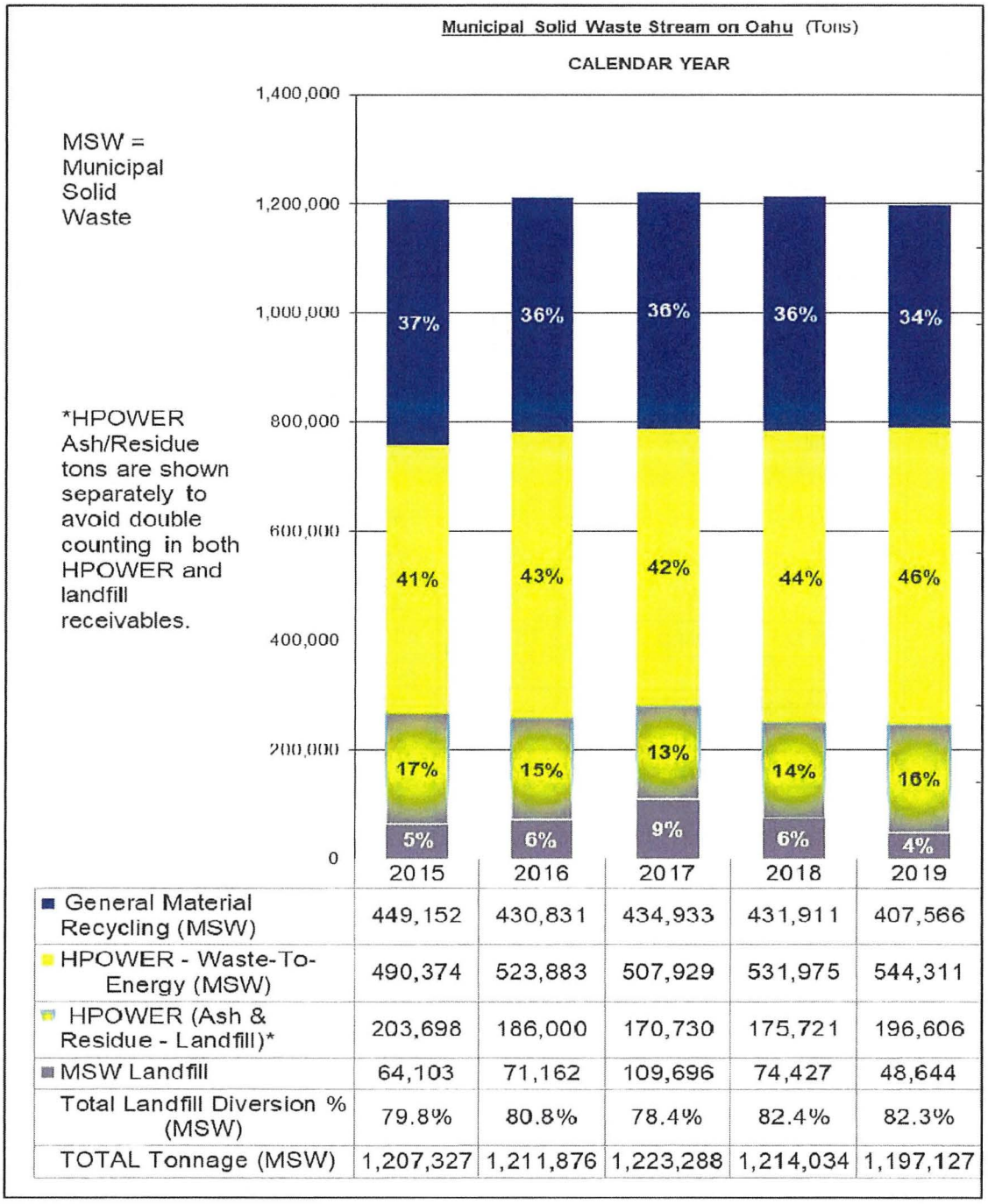
There are two landfills on Oahu: the City's WGSL, which is designated for MSW, and the privately-owned PVT Landfill, which is permitted for C&D waste only.



	2015	2016	2017	2018	2019
C & D - Recycling	731,864	830,414	763,279	833,566	534,722
C & D Landfill	288,258	289,924	97,426	24,939	268,796
General Material Recycling (MSW)	449,152	430,831	434,933	431,911	407,566
HPOWER - Waste-To-Energy (MSW)	490,374	523,883	507,929	531,975	544,311
HPOWER (Ash & Residue - Landfill)*	203,698	186,000	170,730	175,721	196,606
MSW Landfill	64,103	71,162	109,696	74,427	48,644
Total Landfill Diversion % (MSW / C&D)	76.1%	77.6%	82.7%	88.5%	76.0%
TOTAL Tonnage	2,227,449	2,332,214	2,083,993	2,072,539	2,000,645

MSW ONLY data is presented in the chart below. Robust recycling and waste-to-energy rates continue to contribute to the steady decline of MSW tonnage going to the WGSL.

Considering MSW only and landfill diversion specific to the WGSL, the landfill diversion rate achieved through recycling and waste-to-energy is nearing 76%, and the general material recycling rate is dropped to 34% mostly due to the drop in general recycling tonnage. Landfill diversion rates for the most recent five (5) years at WGSL are charted below, allowing for a better visual assessment of the data. Important to note that of the 20% of material landfilled at WGSL in 2019, only 4% was MSW, with the rest consisting of ash and noncombustible residue from H-POWER.



	2015	2016	2017	2018	2019
General Material Recycling (MSW)	449,152	430,831	434,933	431,911	407,566
HPOWER - Waste-To-Energy (MSW)	490,374	523,883	507,929	531,975	544,311
HPOWER (Ash & Residue - Landfill)*	203,698	186,000	170,730	175,721	196,606
MSW Landfill	64,103	71,162	109,696	74,427	48,644
Total Landfill Diversion % (MSW)	79.8%	80.8%	78.4%	82.4%	82.3%
TOTAL Tonnage (MSW)	1,207,327	1,211,876	1,223,288	1,214,034	1,197,127

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 407,000 tons in 2019. Recycling of C&D materials, such as concrete, rock and asphalt, contributed an additional 534,722 tons to the recycling rates, for a total of almost 1.0M tons recycled for 2019. 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 since 2015 due to ongoing major projects. In 2019, there was a significant drop in C&D Recycling due to a decrease in construction and the stored recyclable material stored on site.

Yearly Recycling Rates (tons)

Year	General Material Recycling	C&D Recycling	Total Recycled
2019	407,566	534,722	942,288
2018	431,911	868,617	1,300,528
2017	434,933	763,279	1,198,212
2016	430,831	830,414	1,261,245
2015	449,153	731,865	1,181,018
2014	475,953	401,335	877,286
2013	477,011	257,287	734,298
2012	487,159	179,906	667,065
2011	490,061	181,087	671,148
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

Oahu Recycling 2019	
Material Type	**Amount in tons**
PAPER	
Corrugated Cardboard	40,955
Newspaper	11,595
Office Paper	6,432
Other Paper	1,115
METALS	
Ferrous (includes autos)	138,675
Non-Ferrous (includes aluminum)	12,440
GLASS	13,647
PLASTIC	4,996
TIRES	7,784
AUTO BATTERIES	7,652
ELECTRONIC SCRAP	1,210
GREEN WASTE (yard trimmings)	103,429
WOOD WASTE/PALLETS	6,6067
CONSTRUCTION & DEMOLITION (rock, concrete, asphalt)	537,772
FOOD WASTE	31,947
OTHER REUSE (Goodwill, Salvation Army)	19,621
TOTAL	942,288

The City's efforts to increase residential recycling rates have continued with its ongoing efforts to educate residents about the value and benefits of its three-cart curbside program, and the continued promotion and rejuvenation of its condominium recycling assistance program. Additionally, the City requires commercial sector recycling through mandatory laws established by City ordinance, and provides assistance to businesses to setup and expand their recycling programs.

a. Curbside Recycling – Curbside recycling participation remains strong and material recovery rates are increasing every year. ENV completed the final phase expansion of the fully-automated 3-cart curbside recycling program May 2010. There are currently 170,000 homes participating in the program, capturing material at a rate of 23,000 tons of mixed recyclables and 75,000 tons of green waste per year. Increased public experience with identifying and sorting recyclables is producing higher results for the City's curbside recycling program. The program continues to be evaluated to identify strategies for improving participation, efficiencies and to decrease contamination.

b. Multi-Material Recycling Centers – Recycling is available to those without curbside collection service. There are two City recycling drop-off locations in Haleiwa, one fronting its Waialua Base Yard (Emerson Rd.) and the other at its Kawailoa Transfer Station. Both locations feature several 96-gallon blue carts, complete with instructional signage and stickers for the community to use. All blue cart recyclables are acceptable, including plastics (1 & 2), glass

bottles and jars, metal cans, newspaper, paper bags, corrugated cardboard and white and colored office paper.

c. Condominium Recycling – The City continues to promote condominium recycling through a program reimbursing 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 electronic 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. In 2015, the law was amended to require electronic device manufacturers to establish drop-off locations for e-waste and prohibited mail-back only recycling options for some devices. ENV continues 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 policy established in the mid 1990's, which requires office buildings to recycle office paper, bars/restaurants to recycle glass and a variety of food operations to recycle food waste. It is no longer mandatory for Advance Disposal Fee ("ADF") glass to be sorted by the liquor establishments but the recyclers still receive ADF glass through their commercial accounts. The City suspended the ADF portion of the glass relating to the glass ordinance but the City still receives the State Subsidy for ADF glass the recyclers are collecting. State legislation is needed to increase the fee to lift the suspension on the ADF glass. Disposal site bans/restrictions divert materials from WGSL and H-POWER, including green waste, cardboard, metals, tires, auto batteries, and e-waste. The City is encouraging businesses to generate less food waste and to support food security programs. 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 Ordinances – As of July 1, 2015, businesses are prohibited from providing plastic checkout bags and non-recyclable paper bags to their customers at the point of sale. Per Ordinance 12-8, amended by Ordinance 14-29, ENV is responsible for implementing and enforcing the ban. All information pertaining to the ban is also posted online on www.Opala.org. Businesses are required to submit annual compliance information to verify their compliance with the ban. The ban was amended by Ordinance 17-37, in

2017 to require businesses to charge a minimum of 15 cents per bag for reusable, recyclable paper or compostable bags to customers at the point of sale, effective July 1, 2018. Beginning January 1, 2020, compostable bags were banned and plastic film bags were no longer considered to be reusable bags. The ban was amended by Ordinance 19-30 changing the definition of "plastic" and amending the definitions for "plastic checkout bag" and "plastic film bag".

g. Disposable Food Ware Ordinance – Parts of Ordinance 19-30 took effect on January 1, 2021 and has been termed the Disposable Food Ware Ordinance or DFWO. To continue with the City's efforts to educate the public and business effected by Ordinance 19-30, the City provided an additional 90-day "Education Period" from January 1 to March 31, 2021. The intent of the DFWO is to protect human safety and welfare and to improve environmental quality on the island, in the neighboring marine environment and globally. The DFWO affects all food vendors and businesses operating within the City. The DFWO amends the Oahu Plastic Bag Ban and restricts the use and sale of polystyrene foam food ware, disposable plastic food ware and disposable plastic service ware. It also dictates when disposable service ware may be provided. Inspections for compliance with Ordinance 19-30 began in June 2021.

h. Public education – Public education regarding recycling is ongoing and includes the distribution of brochures and print materials, dissemination of information via the www.Opala.org website, WasteLine e-newsletter and virtual presentations. There has been an increase in social media participation to assist with the public education program. Source reduction will be another component to add to our public education program. The City is in the process of revising ENV website to include a new website to replace www.Opala.org. The new website is to launch in July 2021. The current website will still be active while the new website is on-line. There will be a transition period to phase out www.Opala.org.

Composting workshops – Composting workshops presented by City staff were reinstated as part of the City's public education program. The workshop teaches residents to manage green waste at home by utilizing the green cart for large items such as branches and to aerobically compost the grass trimmings, leaves and small diameter branches. The City is also gathering information to provide food waste composting through the use of worms called vermiculture and beneficial microbes with the Bokashi method. Due to the pandemic, composting workshops are through a virtual format.

Recycling education in the schools – Recycling education shows presented by the Honolulu Theatre for Youth ("HTY") combined with classroom activity books educate our youth to become expert recyclers and encourage them to support their family to properly sort their waste at home. Every year, the

program reaches approximately 20,000 students and teachers. The 11th 2020-21 season included a feature on HTY's HI-Way program aired through the television media. This program features environmental issues including solid waste management and concludes in late February. The program switch was due to the pandemic.

FUNDING ARRANGEMENTS

Funding arrangements for the landfill and alternate technologies have been requested and approved for the Fiscal Year 2021 (Ordinance 20-23) and 2022 (Ordinance 21-21) Capital Improvements (CIP) Budgets. Copies of the CIP budget ordinances are available on the Honolulu City Council website www.honolulu.gov/council, follow the link to Council Bills, Resolutions, and Communications.

CONCLUSION

The foregoing report is submitted in accordance with reporting requirements set forth in the LUC Order dated November 1, 2019. 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 17 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 WGSL.

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.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 768-3486 • FAX: (808) 768-3487 • WEBSITE: http://envhonolulu.org

RICK BLANGIARDI
MAYOR

WESLEY T. YOKOYAMA, P.E.
DIRECTOR

MICHAEL O'KEEFE
DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

December 14, 2021

IN REPLY REFER TO:
RH 22-018

RETURN RECEIPT REQUESTED
7018 0680 0001 2352 1572

Mr. Jonathan Likeke Scheuer, Chair
Land Use Commission
Department of Business, Economic Development & Tourism
State of Hawaii
235 South Beretania Street, Room 406
Honolulu, Hawaii 96813

RETURN RECEIPT REQUESTED
7018 0680 0001 2352 1589

Mr. Brian Lee, Chair
Planning Commission
c/o Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

2021 DEC 16 A 9:1
LAND USE COMM
STATE OF HI

Dear Messrs. Scheuer and Lee:

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

In accordance with the November 1, 2019, State Land Use Commission Order Approving with Modifications the City and County of Honolulu Planning Commission's Recommendation to Approve Special Use Permit, the attached Fourth Semi-Annual Report is submitted for your information. This report covers the period from May 1, 2021 through October 31, 2021, unless otherwise stated in the report.

The report is being concurrently submitted to the Planning Commission and Land Use Commission.

Sincerely,

Wesley T. Yokoyama, P.E.
Director

Attachment

cc: Kamilla Chan - COR

EXHIBIT "A10"

FOURTH SEMI-ANNUAL REPORT

STATUS OF ACTIONS TAKEN TO COMPLY WITH THE STATE LAND USE COMMISSION'S ORDER DATED NOVEMBER 1, 2019
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

December 2021

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PREFACE

This report was prepared in accordance with the State of Hawaii Land Use Commission's ("LUC") Order Approving With Modifications the City and County of Honolulu Planning Commission's Recommendations to Approve a Special Use Permit, dated November 1, 2019 ("LUC Order"). A copy of the LUC Order is available on the LUC's website at https://luc.hawaii.gov/wp-content/uploads/2019/11/SP09-403-final-FOFCOLDO-2019.pdf.

Under Condition No. 7 of the LUC Order, the Applicant (Department of Environmental Services, City and County of Honolulu, hereinafter "ENV") shall provide semi-annual reports to the Planning Commission of the City and County of Honolulu ("Planning Commission") and the LUC regarding the following:

a) The status of the efforts to identify and develop a new landfill site on Oahu,

b) The Waimanalo Gulch Sanitary Landfill's ("WGSL") operations, including gas monitoring,

c) ENV's compliance with the conditions imposed herein,

d) The WGSL's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the WGSL,

e) The City's efforts to use alternative technologies,

f) The extent to which waste is being diverted from the WGSL and

g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the WGSL.

This is the third semi-annual report submitted in accordance with Condition No. 7 and covers the period from May 1, 2021 through October 31, 2021, or as otherwise stated.

STATUS OF IDENTIFYING AND DEVELOPING NEW LANDFILL SITES ON OAHU

1. General

Condition No. 5 of the LUC Order requires that, by no later than December 31, 2022, ENV shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, ENV shall provide written notice to the Planning Commission and the LUC.

2. Current Status

The City has been engaged in an ongoing effort to identify a landfill site. Condition 4 of the prior LUC Order in Docket No. SP09-403, which was certified on October 22, 2009 ("2009 LUC Order"), stated:

"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."

In accordance with Condition 4 of the 2009 LUC Order, Mayor's Advisory Committee on Landfill Site Selection ("MACLSS") met in 2011 and 2012, and completed its final report on September 25, 2012. All committee meetings were open to the public and to public comment. In the final report, 11 potential sites were identified and ranked based on community criteria. Handouts provided to the MACLSS, the Group Memory of each meeting, and the final report are posted online at www.honolulu.gov/opala.

The City retained a consultant to further review and analyze the sites based on technical and engineering considerations. The report, "Assessment of Municipal Solid Waste Handling Requirements for the Island of Oahu", was completed in November 2017 and is available online at www.honolulu.gov/opala.

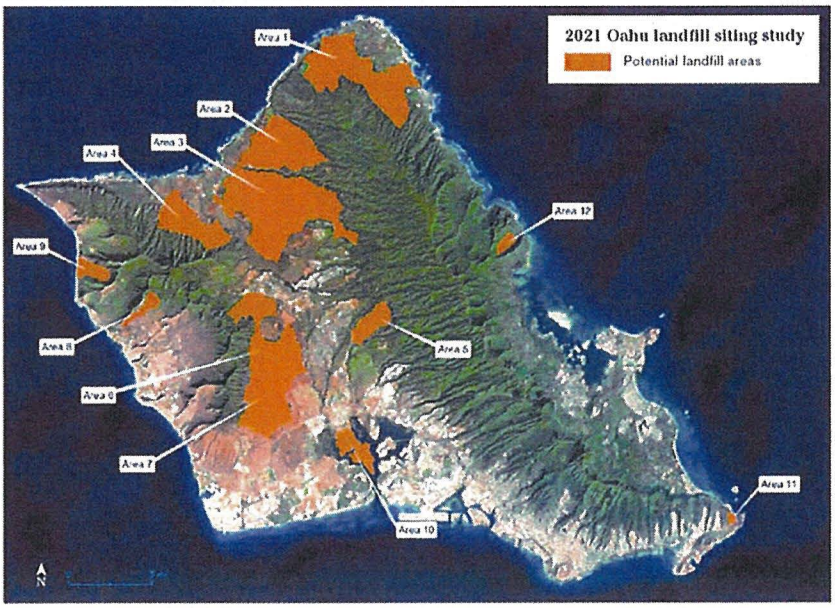
The passage of Act 73 (2020) prohibits the construction, modification, or expansion of waste disposal facilities without first establishing a buffer zone of no less than one-half mile around the waste or disposal facility. Although not required, the active area of WGSL is in compliance with this requirement.

An initial review of the available sites in Fall 2020 reduced the number of potential future landfill sites to four (Keaau, Upland Kahuku 1 and Upland Pupukea 1 and 2) based on sites short-listed in the 2017 landfill siting report. However, additional review in January 2021 determined that a more thorough review and evaluation of new locations island-wide with respect to Act 73 is warranted.

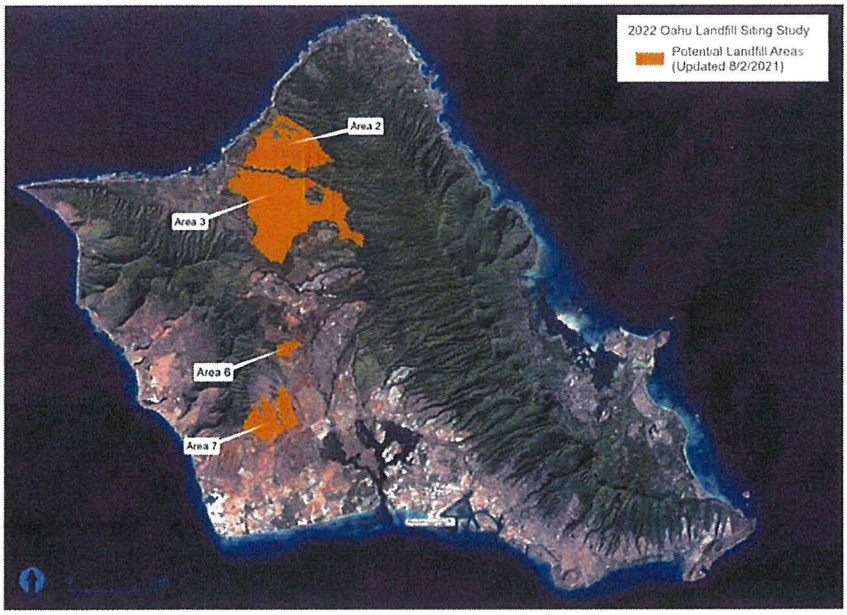
On April 27, 2021, ENV presented an update on integrated solid waste management and progress towards a future landfill site at a joint City Council committee

meeting. ENV shared a preliminary map showing areas compliant with Act 73 where a landfill could potentially be located. The consultant further refined the areas with respect to Act 73 and other constraints.

PROGRESS TOWARD FUTURE LANDFILL SITE



On August 26, 2021, ENV presented a landfill siting update to a joint City Council committee. ENV shared a further refined map of areas where a landfill could potentially be located.



On August 27, 2021, ENV launched a new landfill siting website containing an interactive map tool, resident survey and questions and answers.

On September 24, 2021, Mayor Rick Blangiardi appointed nine members to the Landfill Advisory Committee ("LAC"), which was established in accordance with Section 4-103 of the Revised Charter of the City and County of Honolulu 1973 (2017 edition), as revised. The LAC will evaluate and score potential landfill sites and the final selection of the new landfill site will be made by the City. The LAC's inaugural meeting was held on October 4, 2021, and it is anticipated that it will meet approximately once per month through June 2022. To learn more about the LAC and how to participate in the upcoming public meetings, the public should visit www.honolulu.gov/opala/newlandfill. ENV is continuing to periodically update the City Council and Neighborhood Boards.

3. District Boundary Amendment

In 2020, ENV began preparing an application for a District Boundary Amendment (DBA) to change the zoning of the WGSL site from Agricultural to Urban. ENV also began the environmental review process for the DBA. The EIS and DBA application are not being pursued at this time pending further development of landfill siting activities.

4. Integrated Solid Waste Management Plan

Hawaii Revised Statutes ("HRS") Section 342G-24 requires each county to submit revised integrated solid waste management plans every 10 years with an interim status report submitted five years after every submission of a revised plan. The City has completed the most recent Integrated Solid Waste Management Plan, dated November 2019. The plan was completed after Solid Waste Advisory Committee meetings, State of Hawaii, Department of Health (DOH) review, and a public comment

period. Comments from each step were incorporated. The Plan has been posted online at www.honolulu.gov/opala.

STATUS OF LANDFILL OPERATIONS

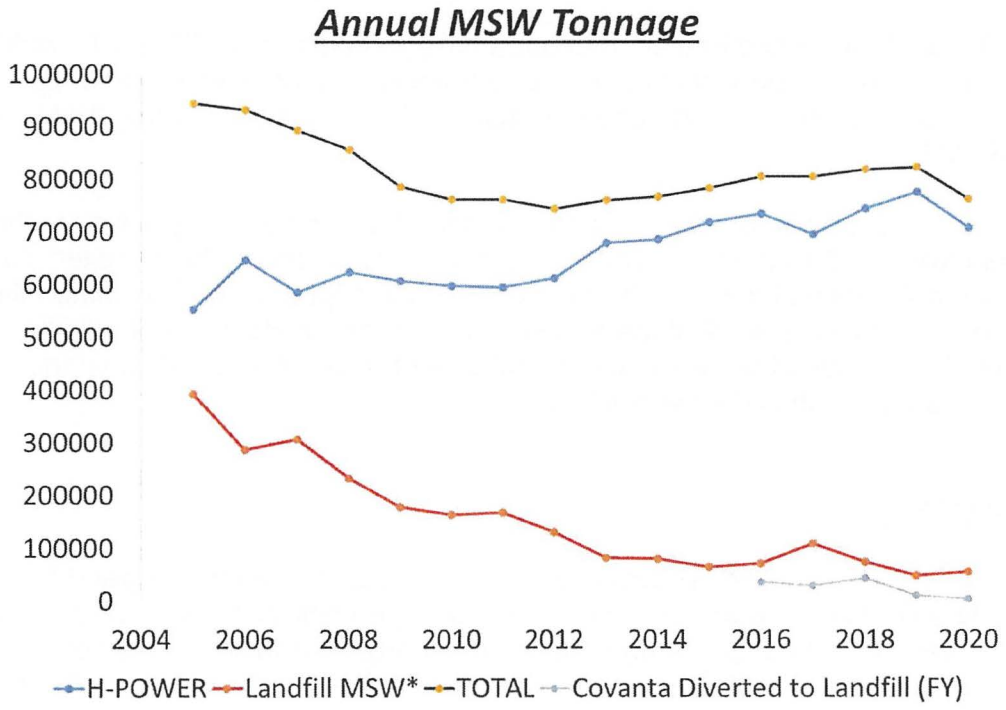
1. Tonnage

Over the period beginning May 1, 2021 through October 31, 2021, the WGSL received the following amounts of material:

H-POWER Ash.....	54,947 tons
H-POWER Residue.....	2,911 tons
Municipal Solid Waste (MSW).....	71,846 tons

The following graph illustrates the reduction of MSW delivered to WGSL (red line) generally as a result of diverting more waste to H-POWER (blue line). Note that the increase in MSW landfilled in 2017 was due to major refurbishment of the processing lines at H-POWER, a once in 30-year project. We are anticipating about 100,000 tons MSW landfilled in 2021, which is about 50,000 tons higher than 2020, due to a once in 6-year major overhaul of H-POWER's turbine-generator set #1 that was completed in May and June 2021.

Future planned projects including a common steam header and second dump condenser are intended to further reduce the amount of MSW diverted to WGSL during H-POWER maintenance outages.



2. Remaining Capacity

As of March 27, 2021 (the date of the last aerial survey), WGSL has 4,656,545 cubic yards of airspace remaining. Using the average fill rates and airspace utilization between March 5, 2020 and March 27, 2021 (time between surveys), WGSL has approximately 17 years of combined MSW and ash life remaining or could reach capacity in the year 2038. This estimate does not consider the impact from PVT Landfill's potential closure within the next 5 to 9 years. In addition, this estimate does not consider advances in technology and additional landfill diversion, discussed further in this report, which could reduce the City's use of WGSL, thereby slowing the rate of landfilling and delaying the date upon which it will reach capacity. The March 2021 survey data was reported to DOH in the annual operating report dated July 29, 2021. The next aerial survey will be conducted in spring 2022.

3. Current Status of WGSL

Activities conducted during the reporting period include MSW landfilling in Cells E-5, E-6, E-7 and E-8 and ash landfilling in Cells E-8 and E-9.

4. Impact of Potential PVT Landfill Closure

PVT Landfill informed haulers that due to the passage of Act 73, PVT would no longer be an option for disposal of asbestos containing material ("ACM") after January 1, 2021. To provide an on-island option for ACM, WGSL began accepting ACM as of January 6, 2021.

With PVT unable to proceed with their planned expansion, they are expecting to close within the next 5 to 9 years. The City is drafting C&D waste recycling legislation and permit modifications for H-POWER to be able to accept the wood or combustible fraction. In addition, Chapter 9 of the Revised Ordinances of Honolulu should be amended to include fees that reflect the actual cost of disposal and special handling required for asbestos and other special wastes.

5. Gas Monitoring

The gas collection and recovery system at WGSL continues to expand to accommodate landfilling operations while maintaining compliance. New air compliance regulations went into effect September 2021, which require additional monitoring around gas wells and surface emissions monitoring. The landfill is maintaining compliance with the new regulations.

COMPLIANCE WITH CONDITIONS OF ORDER

The LUC approved with modifications the Planning Commission's recommendations to approve a special use permit for WGSL and approved with modifications ENV's applications, subject to 17 conditions. The general description and status of each condition is as follows:

Condition No.	Description
1	**The WGSL shall close by no later than March 2, 2028. The WGSL shall not accept any form of waste after March 2, 2028.** Status: So noted
2	**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.** Status: All applicable permits/approvals have been obtained.
3	**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.** Status: Dust control measures and management plan have been provided for as part of the Solid Waste Management Permit issued by the DOH.
4	**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.** Status: So noted.
5	**By no later than December 31, 2022, the Applicant shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, the Applicant shall provide written notice to the Planning Commission and the LUC.** Status: See section on Status of Identifying and Developing New Landfill Sites on Oahu in this report.

Condition No.	Description
6	**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.** Status: See section on Alternative Technologies in this report.
7	**The Applicant shall provide semi-annual reports to the Planning Commission and the LUC regarding the following: a) The status of the efforts to identify and develop a new landfill site on Oahu, b) The WGSL's operations, including gas monitoring, c) The Applicant's compliance with the conditions imposed herein, d) The Landfill's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the landfill, e) The City's efforts to use alternative technologies, f) The extent to which waste is being diverted from the landfill and g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the landfill.** Status: Each year reports will be submitted to cover the six-month periods of November through April, and May through October.
8	**Closure Sequence "A" for the existing landfill cells at WGSL as shown on Exhibit "A12" must be completed, and final cover applied, by December 31, 2012.** Status: Closure Sequence "A" was commenced in June 2012 and the final cover was applied and substantially completed in December 2012.
9	**WGSL 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.** Status: 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. with the exception of H-POWER ash, which can be received 24 hours a day. Permission to extend hours to accommodate refuse loads during H-POWER outages shall be obtained from DOH on an as-needed basis.

Condition No.	Description
10	**The Applicant shall coordinate construction of the landfill cells in the expansion area and operation of WGSL 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.** Status: Coordination with HECO will be done to ensure that landfill construction and operations are adequately separated from overhead electrical power lines.
11	**The operations of the WGSL 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.** Status: Revised Ordinances of Honolulu § 21-5.680 is inapplicable to the WGSL as that Property is a public use and said ordinance therefore does not impact operations at WGSL. The operations of the WGSL are in compliance with any and all applicable rules and regulations of the DOH.
12	**The Planning Commission may at any time impose additional conditions when it becomes apparent that a modification is necessary and appropriate.** Status: So noted.
13	**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.** Status: So noted.
14	**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).** Status: Respective notifications will be made prior to termination of the use of the property as a landfill.

Condition No.	Description
15	**The Applicant 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 being considered by the City Council and the City Administration.** Status: See Condition No. 16 Status.
16	**The Applicant shall have a public hearing every three months in either Waianae, Maili, or Nanakuli to report on the status of their efforts to either reduce or continue the use of the WGSL.** Status: After November 1, 2019 (the date of the LUC Order), public hearings are being conducted in Nanakuli every 3 months to report on the status of efforts to either reduce or continue the use of the WGSL and the efforts of the City Council and City Administration in regard to the continued use of the WGSL, including any funding arrangements being considered by the City Council and the City Administration. ENV publishes public notice of the public hearings in the newspaper and posts notice on www.honolulu.gov/opala. Summaries of the hearings are posted online at www.honolulu.gov/opala. During the reporting period, two public hearings were held on July 20, 2021 and October 19, 2021. Due to the COVID-19 Emergency Declarations, the designated meeting site, the Kalanianaole Beach Park in Nanakuli, was closed to the public and the public hearings were held remotely via WebEx. A total of 11 members of the public attended the hearings.
17	**If the landfill releases waste or leachate, the Applicant must immediately a) notify the surrounding community, including the Makakilo/Kapolei/Honokai Hale, Waianae Coast and Nanakuli-Maili Neighborhood Boards, Intervenors Schnitzer Steel Hawaii Corp., Ko Olina Community Association, Maile Shimabukuro and Colleen Hanabusa and b) take remedial actions to clean up the waste and to keep the waste from spreading. Such remedial actions shall include, but shall not be limited to, placing debris barriers and booms at the landfill's shoreline outfall to prevent waste from spreading into the ocean.** Status: So noted.

REGULATORY COMPLIANCE

1. Solid Waste Permit

The final solid waste permit for the proposed lateral expansion was approved by the 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), WGSL 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 by DOH later in 2021. New cell construction and drainage improvements are complete.

2. Consent Decree

The City and Waste Management of Hawaii ("WMH"), the WGSL operator, reached a settlement with the U.S. Environmental Protection Agency ("EPA") and DOH over alleged violations of the Clean Water Act and State law. The alleged violations arose primarily from storm events that occurred in the winter of 2010-2011, during construction of the WGSL's western diversion drainage system. The EPA and DOH alleged that following the large rain storms the City and WMH violated the Clean Water Act by discharging pollutants without National Pollutant Discharge Elimination System Permit authorization and by discharging pollutants in storm water in violation of the terms of the Notice of General Permit Coverage for Industrial Stormwater issued to the City.

On July 3, 2019, the U.S. District Court for the District of Hawaii entered the consent decree in United States of America and State of Hawaii Department of Health v. Waste Management of Hawaii, Inc. and City and County of Honolulu, Case No. 1:19-cv-00224.

In accordance with the consent decree, the City paid a civil penalty of $62,500 to the United States and $62,500 in lieu of a civil penalty to the state Department of Land and Natural Resources Division of Aquatic Resources. Similarly, WMH paid $150,000 to each entity.

Also in accordance with the consent decree, the City and WMH implemented enhancements to WGSL's western diversion drainage system, revised the facility's stormwater pollution control plan, and applied for an individual stormwater permit for WGSL. DOH Clean Water Branch is reviewing the permit application. The City and WMH continue to comply with the detention basin operating and monitoring parameters set forth in the consent decree.

ALTERNATIVE TECHNOLOGIES AND LANDFILL DIVERSION

1. H-POWER

The H-POWER waste-to-energy facility, operated by Covanta, continues to process over 725,000 tons of municipal solid waste each year. The facility has operated reliably for over 30 years and has disposed of about 20,000,000 tons of municipal solid waste, generating in excess of $55,000,000 annual net revenues from the sale of electricity, recovered metals and tipping fees, and avoided the importation of about 20,000,000 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 April 2, 2013. It enables the facility to process and burn bulky waste that previously had to be disposed at WGSL. With the addition of the third boiler, and other efforts to divert waste from WGSL, H-POWER now plays an even larger role in reducing waste disposal at WGSL.

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 the wastewater treatment plants. The 20,000 tons per year of sludge currently produced by these plants is now being diverted from WGSL to H-POWER. In addition, a corresponding amount of bulky waste, which was required to bulk the sludge at WGSL, 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 is not accepted at H-POWER and will continue to be disposed of at WGSL.

c. Tires

H-POWER's solid waste management permit issued by DOH allows acceptance of used auto tires collected by the City, including refuse collection, convenience centers and illegal dumping up to 400 tires per day or 65,000 tires per year.

d. In-Feed Waste Processing Improvements and Baling

ENV and Covanta are planning in-feed waste processing improvements to the RDF Waste Processing Facility that will include a mobile baling system. The project will allow processing of bulky waste into RDF. The mobile baler will provide flexibility to store waste during extended maintenance outages. The baled waste would be stored and processed later, further reducing diversion of waste to WGSL. The equipment was tested in March 2021 and DOH approval is pending for operation and storing of bales.

e. Bulk Loads of Food Waste

Since March 1, 2017, bulk loads of commercially-generated spoiled food have been diverted from WGSL. ENV is evaluating technologies for the digestion of food waste.

2. Ash, Process Residue and Auto Shredder Residue

In July 2021, H-POWER began combusting its process residue on a trial basis. Operating data is being collected to determine whether to make the change permanent. This change has reduced the amount of process residue being disposed at the landfill from about 4000 tons per month to zero.

A project for the processing and beneficial reuse of ash was awarded to Covanta Projects LLC. The project is pending approval by EQT, the new owner of Covanta, anticipated by the end of 2021. This project, when permitted and built, has the potential to divert at least 60% of the H-POWER ash that is currently disposed at WGSL.

Approximately 30,000 tons per year of ASR is disposed at WGSL. Although ASR was envisioned to be diverted to H-POWER, evaluation of ASR test data has concluded that the high Fluorine and Chlorine content of the material can be extremely harmful to the boiler. The matter is pending further evaluation and possible testing. The ash project may consider ASR processing as a potential future option.

3. Plasma Arc Gasification

Plasma Arc Gasification is mostly used overseas (i.e. Japan) for hazardous waste (very high tip fee), auto shredder fluff, ash, or other homogenous wastes. It has not worked well on mixed waste (trash) and has only been applied as research, demo, military or ship-bound or pilot scale projects in the last 15-20 years.

There are currently no operating commercial-scale plasma arc gasification facilities in North America. Any such facilities in North America that were operating in the past are no longer operating. The Ottawa, Canada and St. Lucie County, Florida projects both failed to proceed past the planning, financing and permitting stage and are not active.

Plasma arc technology continues to face major obstacles including:

- inability to scale up to commercial-scale
- excessively high cost
- excessively high amount of power purchased and imported from the utility to power the plasma torches
- high maintenance demands and limited life
- lot of downtime
- inability to obtain financing and regulatory permits

Until these challenges are resolved, plasma arc technology should not be considered for Honolulu.

4. Sludge Re-use

Further processing and reuse of sludge avoids the need to landfill this waste stream. Laie Wastewater Treatment Plant ("WWTP") converts green waste mixed with sewage sludge into compost by using the windrow process. Sand Island WWTP processes sewage sludge into fertilizer pellets using the Synagro process. Since 2014, the average Synagro pellet reuse has been 93% (7% landfilled). Note that there are times, especially during 2016, when the farms experience heavy rains and are not able to accept the pellets.

4. Materials Recycling

To present a complete waste flow picture for Oahu, the most current data available is for calendar year 2020. Although waste to WGSL and H-POWER is tracked monthly by ENV, recycling data is provided by commercial recycling companies that are surveyed annually. Recycling data for 2020 was gathered and compiled during the first half of 2021; updated charts and analysis are posted below. Recycling data for 2020 is posted on www.honolulu.gov/opala.

The island's waste data is presented in two charts:

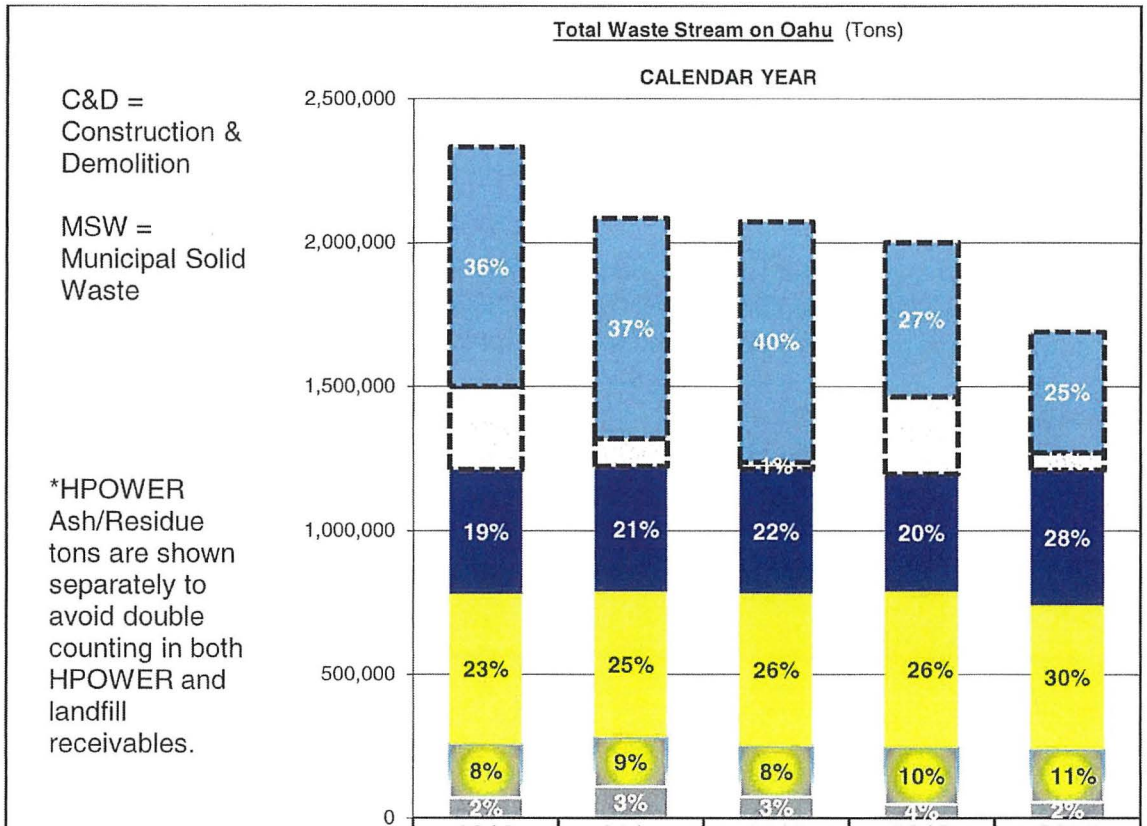
1. TOTAL WASTE which includes Municipal Solid Waste ("MSW") and Construction and Demolition ("C&D") material, processed through recycling, waste-to-energy or landfilling; and

2. MSW only, processed through recycling, waste-to-energy or landfilling.

Both charts present data for the most recent five (5) calendar years (2016-2020). Moreover, this data shows how Oahu's waste was diverted from WGSL through recycling and waste-to-energy.

TOTAL WASTE data is presented in the chart below. For 2020, rates for C&D material recycling and disposal decreased overall from the 2019, while recycling and waste-to--energy combined to divert nearly 76% of waste from landfills.

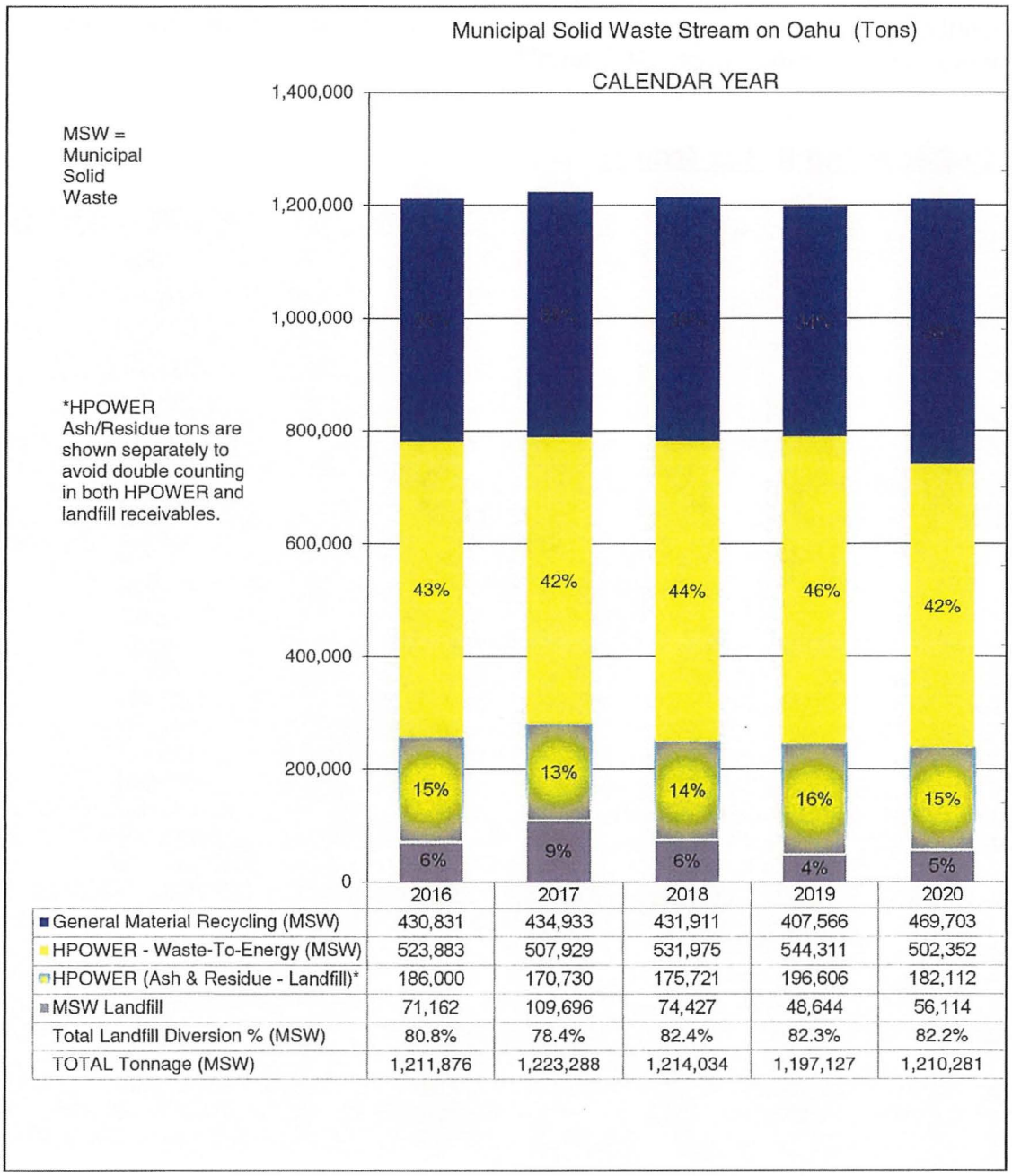
There are two landfills on Oahu: the City's WGSL, which is designated for MSW, and the privately-owned PVT Landfill, which is permitted for C&D waste only.



	2016	2017	2018	2019	2020
C & D - Recycling	830,414	763,279	833,566	534,722	417,854
C & D Landfill	289,924	97,426	24,939	268,796	61,694
General Material Recycling (MSW)	430,831	434,933	431,911	407,566	469,703
HPOWER - Waste-To-Energy (MSW)	523,883	507,929	531,975	544,311	502,352
HPOWER (Ash & Residue - Landfill)*	186,000	170,730	175,721	196,606	182,112
MSW Landfill	71,162	109,696	74,427	48,644	56,114
Total Landfill Diversion % (MSW / C&D)	77.6%	82.7%	88.5%	76.0%	83.6%
TOTAL Tonnage	2,332,214	2,083,993	2,072,539	2,000,645	1,689,829

MSW ONLY data is presented in the chart below. Robust recycling and waste-to-energy rates continue to contribute to the steady decline of MSW tonnage going to the WGSL. Considering MSW only and landfill diversion specific to the WGSL, the landfill diversion rate achieved through recycling and waste-to-energy is at 82.2%, and the general material recycling rate increased to 38%, an increase of 4% from 2019. Landfill diversion rates for the most recent five (5) years at WGSL are charted below, allowing for a better visual assessment of the data. Important to note that 5% of the approximate 20% of material landfilled at WGSL

in 2020, was MSW, with the rest consisting of ash and noncombustible residue from H-POWER.



	2016	2017	2018	2019	2020
General Material Recycling (MSW)	430,831	434,933	431,911	407,566	469,703
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HPOWER (Ash & Residue - Landfill)*	186,000	170,730	175,721	196,606	182,112
MSW Landfill	71,162	109,696	74,427	48,644	56,114
Total Landfill Diversion % (MSW)	80.8%	78.4%	82.4%	82.3%	82.2%
TOTAL Tonnage (MSW)	1,211,876	1,223,288	1,214,034	1,197,127	1,210,281

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 470,000 tons in 2020. Recycling of C&D materials, such as concrete, rock and asphalt, contributed an additional 417,854 tons to the recycling rates, for a total of

almost 900,000 tons recycled for 2020. 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 since 2015 due to ongoing major projects. In 2020, there was a significant drop in C&D Recycling due to a decrease in construction and the stored recyclable material at the private C&D landfill.

Yearly Recycling Rates (tons)

Year	General Material Recycling	C&D Recycling	Total Recycled
2020	469,703	417,854	887,557
2019	407,566	534,722	942,288
2018	431,911	868,617	1,300,528
2017	434,933	763,279	1,198,212
2016	430,831	830,414	1,261,245
2015	449,153	731,865	1,181,018
2014	475,953	401,335	877,286
2013	477,011	257,287	734,298
2012	487,159	179,906	667,065
2011	490,061	181,087	671,148
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

Oahu Recycling 2020	
Material Type	**Amount in tons**
PAPER	
Corrugated Cardboard	41,812
Newspaper	8,574
Office Paper	5,213
Other Paper	1,060
METALS	
Ferrous (includes autos)	139,366
Non-Ferrous (includes aluminum)	10,855
GLASS	10,947
PLASTIC	4,799
TIRES	7,783
AUTO BATTERIES	9,193
ELECTRONIC SCRAP	1,000
GREEN WASTE (yard trimmings)	169,933
WOOD WASTE/PALLETS	8,715
CONSTRUCTION & DEMOLITION (rock, concrete, asphalt)	417,854
FOOD WASTE	38,361
OTHER REUSE (Goodwill, Salvation Army)	11,821
TOTAL	887,557

The City's efforts to increase residential recycling rates have continued with its ongoing efforts to educate residents about the value and benefits of its three-cart curbside program, and the continued promotion and rejuvenation of its condominium recycling assistance program. Additionally, the City requires commercial sector recycling through mandatory laws established by City ordinance, and provides assistance to businesses to setup and expand their recycling programs.

a. Curbside Recycling – Curbside recycling participation remains strong and material recovery rates are increasing every year. ENV completed the final phase expansion of the fully-automated 3-cart curbside recycling program May 2010. There are currently 170,000 homes participating in the program, capturing material at a rate of 23,000 tons of mixed recyclables and 75,000 tons of green waste per year. Increased public experience with identifying and sorting recyclables is producing higher results for the City's curbside recycling program. The program continues to be evaluated to identify strategies for improving participation, efficiencies and to decrease contamination.

b. Multi-Material Recycling Centers – Recycling is available to those without curbside collection service. There are two City recycling drop-off locations in Haleiwa, one fronting its Waialua Base Yard (Emerson Rd.) and the other at its Kawailoa Transfer Station. Both locations feature several 96-gallon blue carts, complete with instructional signage and stickers for the community to use. All blue cart recyclables are acceptable, including plastics (1 & 2), glass bottles and jars, metal cans, newspaper, paper bags, corrugated cardboard and white and colored office paper.

c. Condominium Recycling – The City continues to promote condominium recycling through a program reimbursing 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 electronic 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. In 2015, the law was amended to require electronic device manufacturers to establish drop-off locations for e-waste and prohibited mail-back only recycling options for some devices. ENV continues 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 policy established in the mid 1990's, which requires office buildings to recycle office paper, bars/restaurants to recycle glass and a variety of food operations to recycle food waste. It is no longer mandatory for Advance Disposal Fee ("ADF") glass to be sorted by the liquor establishments but the recyclers still receive ADF glass through their commercial accounts. The City suspended the ADF portion of the glass relating to the glass ordinance but the City still receives the State Subsidy for ADF glass the recyclers are collecting. State legislation is needed to increase the fee to lift the suspension on the ADF glass. Disposal site bans/restrictions divert materials from WGSL and H-POWER, including green waste, cardboard, metals, tires, auto batteries, and e-waste. The City is encouraging businesses to generate less food waste and to support food security programs. 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 Ordinances – As of July 1, 2015, businesses are prohibited from providing plastic checkout bags and non-recyclable paper bags to their customers at the point of sale. Per Ordinance 12-8, amended by Ordinance 14-29, ENV is responsible for implementing and enforcing the ban. All information pertaining to the ban is also posted online on www.honolulu.gov/opala. Businesses are required to submit annual compliance information to verify their compliance with the ban. The ban was amended by Ordinance 17-37, in 2017 to require businesses to charge a minimum of 15 cents per bag for reusable, recyclable paper or compostable bags to customers at the point of sale, effective July 1, 2018. Beginning

January 1, 2020, compostable bags were banned and plastic film bags were no longer considered to be reusable bags. The ban was amended by Ordinance 19-30 changing the definition of "plastic" and amending the definitions for "plastic checkout bag" and "plastic film bag" as well as revising the exemptions list.

g. Disposable Food Ware Ordinance – Parts of Ordinance 19-30 took effect on January 1, 2021 and has been termed the Disposable Food Ware Ordinance or DFWO. To continue with the City's efforts to educate the public and business effected by Ordinance 19-30, the City provided an additional 90-day "Education Period" from January 1 to March 31, 2021. The intent of the DFWO is to protect human safety and welfare and to improve environmental quality on the island, in the neighboring marine environment and globally. The DFWO affects all food vendors and businesses operating within the City. The DFWO amends the Oahu Plastic Bag Ban and restricts the use and sale of polystyrene foam food ware, disposable plastic food ware and disposable plastic service ware. It also dictates when disposable service ware may be provided. Inspections for compliance with Ordinance 19-30 began in June 2021, but the City is aware that many food vendors are experiencing economic hardship due to the measures taken to address the COVID-19 public health emergency. In order to promote and protect the public health, safety, and welfare of the residents of the City, and to provide relief from the economic impact directly and indirectly caused by COVID-19, the City recently suspended the restrictions on disposable plastic service ware and polystyrene foam food ware. The suspension of Section 41-27.2(b) and (d), Revised Ordinances of Honolulu, took effect on June 25, 2021, and will continue through September 5, 2021, pursuant to the Mayor's Fourteenth Proclamation of Emergency or Disaster (COVID-19 [Novel Coronavirus]). The Mayor's Fifteenth proclamation extended the suspension through October 22, 2021.

h. Public education – Public education regarding recycling is ongoing and includes the distribution of brochures and print materials, dissemination of information via City's new refuse website, www.honolulu.gov/opala, WasteLine e-newsletter and virtual presentations. There has been an increase in social media participation to assist with the public education program. Source reduction will be another component to add to our public education program. Opala.org will have a redirect to the new website. The transition period to phase out the old website will be approximately 2 years.

Composting workshops – Composting workshops presented by City staff were reinstated as part of the City's public education program. The workshop teaches residents to manage green waste at home by utilizing the green cart for large items such as branches and to aerobically compost the grass trimmings, leaves and small diameter branches. The City is also gathering information to provide food waste composting through the use of worms

called vermiculture and beneficial microbes with the Bokashi method. Due to the pandemic, composting workshops are through a virtual format.

Recycling education in the schools – Recycling education shows presented by the Honolulu Theatre for Youth ("HTY") combined with classroom activity books educate our youth to become expert recyclers and encourage them to support their family to properly sort their waste at home. Every year, the program reaches approximately 20,000 students and teachers. The 12th season will include a feature on HTY's HI-Way program aired through the television media with a focus on food waste reduction and the introduction of Fats, Oil and Grease. This program features environmental issues including solid waste management and concludes in late February.

FUNDING ARRANGEMENTS

Funding arrangements for the landfill and alternate technologies have been requested and approved for the Fiscal Year 2021 (Ordinance 20-23) and 2022 (Ordinance 21-21) Capital Improvements (CIP) Budgets. Copies of the CIP budget ordinances are available on the Honolulu City Council website www.honolulu.gov/council, follow the link to Council Bills, Resolutions, and Communications.

CONCLUSION

The foregoing report is submitted in accordance with reporting requirements set forth in the LUC Order dated November 1, 2019. 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 17 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 WGSL.

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.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 768-3486 ● FAX: (808) 768-3487 ● WEBSITE: http://envhonolulu.org

RICK BLANGIARDI
MAYOR

ROGER BABCOCK, JR., Ph.D., P.E.
DIRECTOR

MICHAEL O'KEEFE
DEPUTY DIRECTOR

IN REPLY REFER TO:
RH 23-003

July 13, 2022

RETURN RECEIPT REQUESTED
7018 0680 0001 2352 1626

Mr. Jonathan Likeke Scheuer, Chair
Land Use Commission
Department of Business, Economic Development & Tourism
State of Hawaii
235 South Beretania Street, Room 406
Honolulu, Hawaii 96813

LAND USE COMMISSION
STATE OF HAWAII
2022 JUL 18 A 10:57

RETURN RECEIPT REQUESTED
7018 0680 0001 2352 1633

Mr. Brian Lee, Chair
Planning Commission
c/o Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Messrs. Scheuer and Lee:

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

In accordance with the November 1, 2019 State Land Use Commission Order Approving with Modifications the City and County of Honolulu Planning Commission's Recommendation to Approve Special Use Permit, the attached Fifth Semi-Annual Report is submitted for your information. This report covers the period from November 1, 2021 through April 30, 2022, unless otherwise stated in the report.

The report is being concurrently submitted to the Planning Commission and Land Use Commission.

Sincerely,

Roger Babcock Jr.

Roger Babcock, Jr., Ph.D., P.E.
Director

Attachment

cc: Kamilla Chan - COR

EXHIBIT "A11"

FIFTH SEMI-ANNUAL REPORT

STATUS OF ACTIONS TAKEN TO COMPLY WITH THE STATE LAND USE COMMISSION'S ORDER DATED NOVEMBER 1, 2019 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

July 2022

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CONCLUSION 26

PREFACE

This report was prepared in accordance with the State of Hawaii Land Use Commission's ("LUC") Order Approving With Modifications the City and County of Honolulu Planning Commission's Recommendations to Approve a Special Use Permit, dated November 1, 2019 ("LUC Order"). A copy of the LUC Order is available on the LUC's website at https://luc.hawaii.gov/wp-content/uploads/2019/11/SP09-403-final-FOFCOLDO-2019.pdf.

Under Condition No. 7 of the LUC Order, the Applicant (Department of Environmental Services, City and County of Honolulu, hereinafter "ENV") shall provide semi-annual reports to the Planning Commission of the City and County of Honolulu ("Planning Commission") and the LUC regarding the following:

a) The status of the efforts to identify and develop a new landfill site on Oahu,

b) The Waimanalo Gulch Sanitary Landfill's ("WGSL") operations, including gas monitoring,

c) ENV's compliance with the conditions imposed herein,

d) The WGSL's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the WGSL,

e) The City's efforts to use alternative technologies,

f) The extent to which waste is being diverted from the WGSL and

g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the WGSL.

This is the fifth semi-annual report submitted in accordance with Condition No. 7 and covers the period from November 1, 2021 through April 30, 2022, or as otherwise stated.

STATUS OF IDENTIFYING AND DEVELOPING NEW LANDFILL SITES ON OAHU

1. General

Condition No. 5 of the LUC Order requires that, by no later than December 31, 2022, ENV shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, ENV shall provide written notice to the Planning Commission and the LUC.

2. Current Status

The City has been engaged in an ongoing effort to identify a landfill site. Condition No. 4 of the prior LUC Order in Docket No. SP09-403, which was certified on October 22, 2009 ("2009 LUC Order"), stated:

"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."

In accordance with Condition No. 4 of the 2009 LUC Order, Mayor's Advisory Committee on Landfill Site Selection ("MACLSS") met in 2011 and 2012, and completed its final report on September 25, 2012. All committee meetings were open to the public and to public comment. In the final report, 11 potential sites were identified and ranked based on community criteria. Handouts provided to the MACLSS, the Group Memory of each meeting, and the final report are posted online at www.honolulu.gov/opala.

The City retained a consultant to further review and analyze the sites based on technical and engineering considerations. The report, "Assessment of Municipal Solid Waste Handling Requirements for the Island of Oahu", was completed in November 2017 and is available online at www.honolulu.gov/opala.

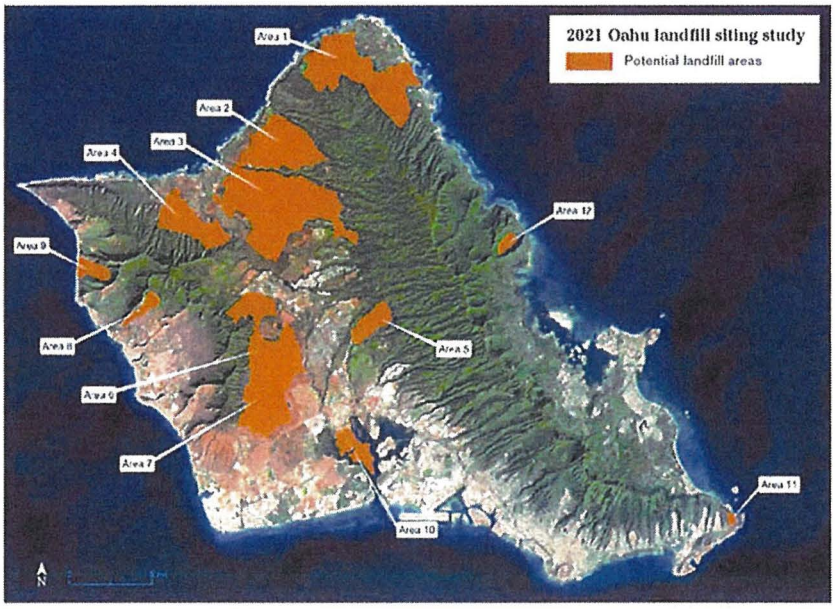
The passage of Act 73 (2020) prohibits the construction, modification, or expansion of waste disposal facilities without first establishing a buffer zone of no less than one-half mile around the waste or disposal facility. Although not required, the active area of WGSL is in compliance with this requirement.

An initial review of the available sites in Fall 2020 reduced the number of potential future landfill sites to four (Keaau, Upland Kahuku 1 and Upland Pupukea 1 and 2) based on sites short-listed in the 2017 landfill siting report. However, additional review in January 2021 determined that a more thorough review and evaluation of new locations island-wide with respect to Act 73 is warranted.

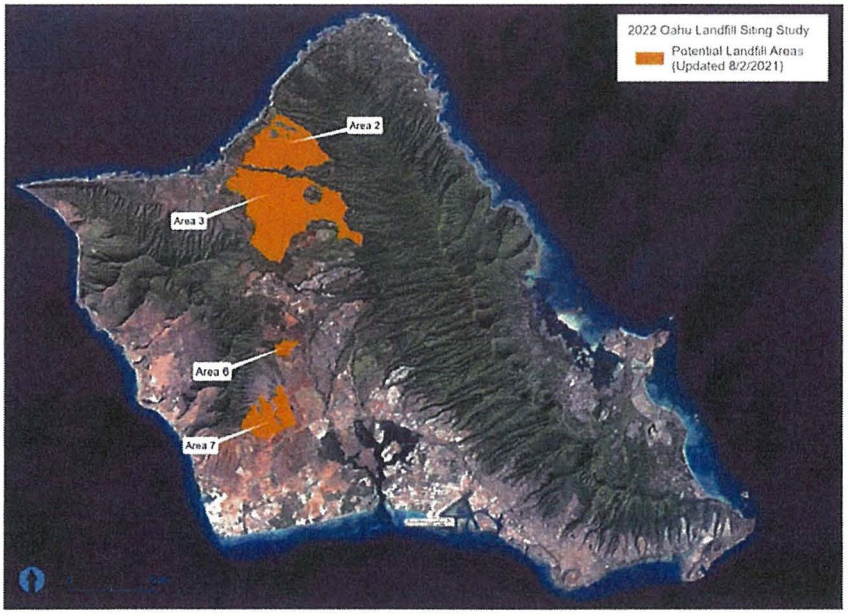
On April 27, 2021, ENV presented an update on integrated solid waste management and progress towards a future landfill site at a joint City Council committee

meeting. ENV shared a preliminary map showing areas compliant with Act 73 where a landfill could potentially be located. The consultant further refined the areas with respect to Act 73 and other constraints.

PROGRESS TOWARD FUTURE LANDFILL SITE



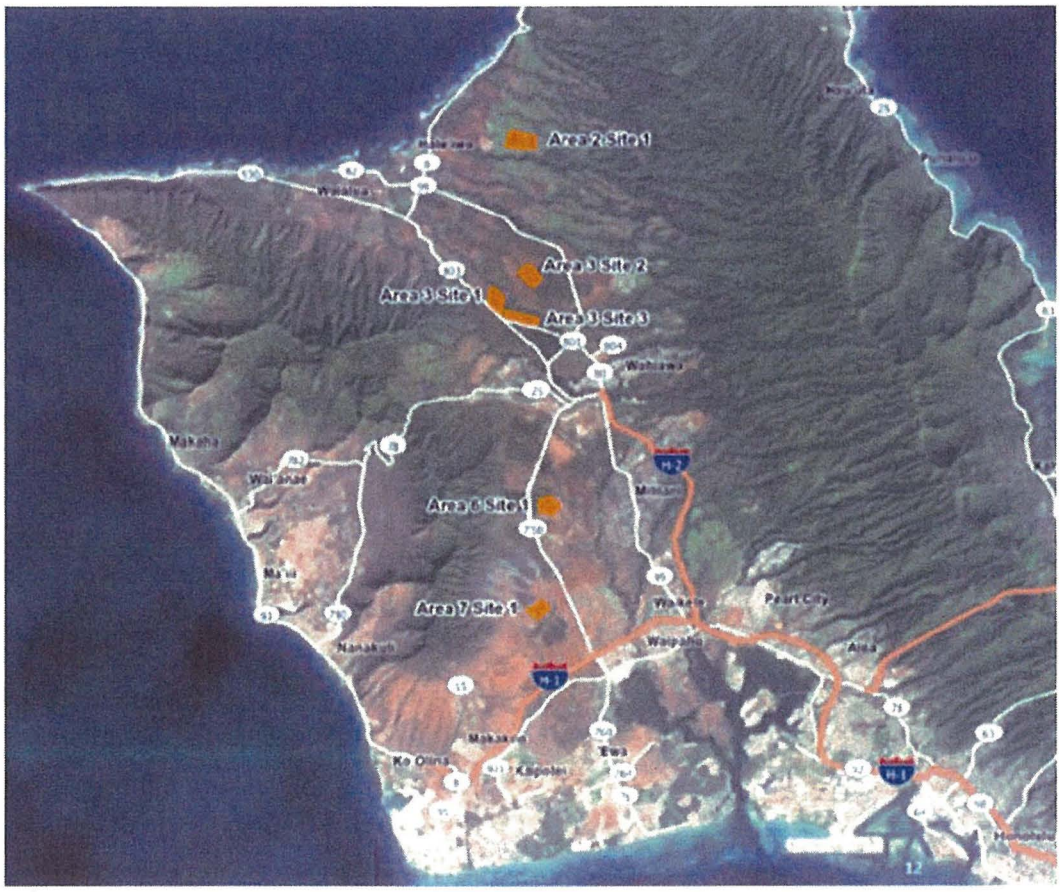
On August 26, 2021, ENV presented a landfill siting update to a joint City Council committee. ENV shared a further refined map of areas where a landfill could potentially be located.



On August 27, 2021, ENV launched a new landfill siting website containing an interactive map tool, resident survey and questions and answers.

On September 24, 2021, Mayor Rick Blangiardi appointed nine members to the Landfill Advisory Committee ("LAC"), which was established in accordance with Section 4-103 of the Revised Charter of the City and County of Honolulu 1973 (2017 edition), as revised.

The LAC's inaugural meeting was held on October 4, 2021. A total of eight meetings were conducted with the last meeting held on June 6, 2022. The LAC evaluated and scored six potential landfill sites shown below. The scores were used to produce the site ranking, but the committee discussed that none of the sites are suitable due to their proximity to the drinking water aquifer. The LAC report has been finalized and the final selection of the new landfill site will be made by the City.



To learn more about the LAC, the public should visit www.honolulu.gov/opala/newlandfill. ENV is continuing to periodically update the City Council and Neighborhood Boards.

3. <u>District Boundary Amendment</u>

In 2020, ENV began preparing an application for a District Boundary Amendment (DBA) to change the zoning of the WGSL site from Agricultural to Urban. ENV also began the environmental review process for the DBA. The EIS and DBA application are not being pursued at this time pending further development of landfill siting activities.

STATUS OF LANDFILL OPERATIONS

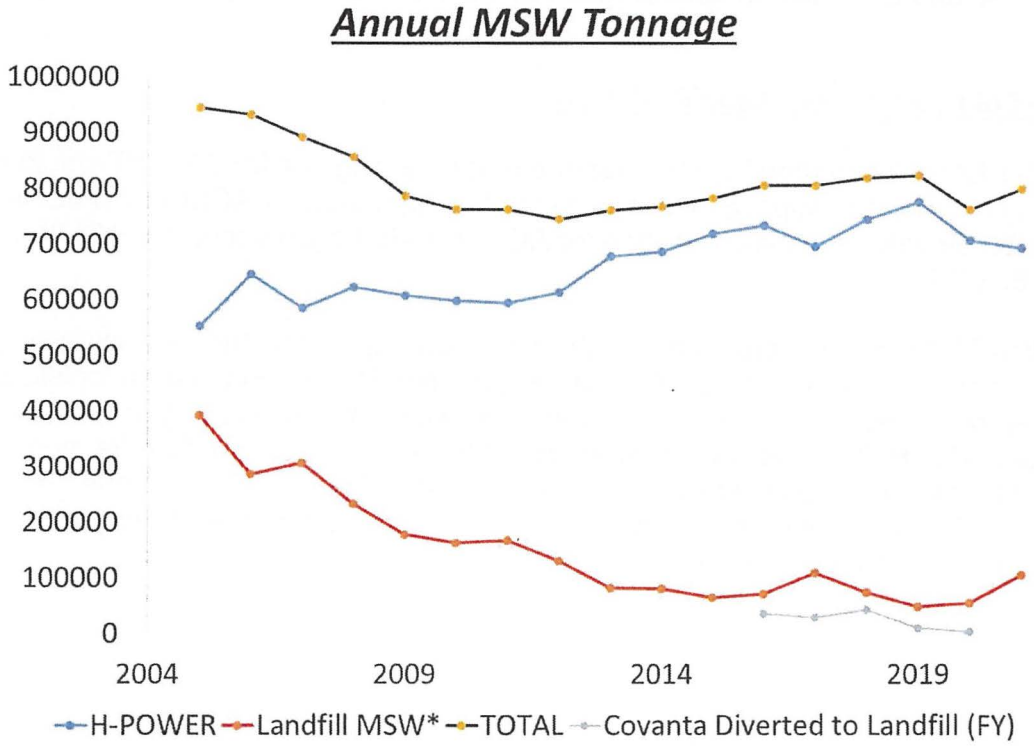
1. Tonnage

Over the period beginning November 1, 2021 through April 30, 2022, the WGSL received the following amounts of material:

H-POWER Ash.....	75,982.93 tons
H-POWER Residue.....	0 tons
Municipal Solid Waste (MSW).....	29,169.52 tons

During the reporting period, H-POWER combusted its process residue as part of a trial project. This project is discussed in the Source Reduction, Alternative Technologies and Landfill Diversion section of this report.

The following graph illustrates the reduction of MSW delivered to WGSL (red line) generally as a result of source reduction and diverting more waste from the landfill to H-POWER (blue line). The total MSW (black line) reflects the MSW reduction during the Great Recession that began in 2008, a slow but steady economic recovery and another MSW reduction during the COVID-19 pandemic that began in 2019. Slightly higher landfill tonnages in 2017 and 2021 were due to facility refurbishment projects and major turbine-generator maintenance. For 2022, about 50,000 tons MSW to landfill is expected.



Future planned improvement projects including a second dump condenser are intended to further reduce the amount of MSW diverted to WGSL during H-POWER maintenance outages.

2. Remaining Capacity

As of March 27, 2021 (the date of the last aerial survey), WGSL has 4,656,545 cubic yards of airspace remaining. Using the average fill rates and airspace utilization between March 5, 2020 and March 27, 2021 (time between surveys), WGSL has approximately 17 years of combined MSW and ash life remaining or could reach capacity in the year 2038. This estimate does not consider the impact from PVT Landfill's potential closure within the next 4 to 8 years. In addition, this estimate does not consider advances in technology and additional landfill diversion, discussed further in this report, which could reduce the City's use of WGSL, thereby slowing the rate of landfilling and delaying the date upon which it will reach capacity. The March 2021 survey data was reported to DOH in the annual operating report dated July 29, 2021. This year's aerial survey was conducted in spring 2022, the data is being compiled and results will be reported to DOH in the next annual operating report due July 31, 2022.

3. Current Status of WGSL

Activities conducted during the reporting period include MSW landfilling in Cells E-5, E-6, E-7 and E-8 and ash landfilling in Cells E-8 and E-9.

4. Impact of Potential PVT Landfill Closure

PVT Landfill informed haulers that due to the passage of Act 73, PVT would no longer be an option for disposal of asbestos containing material ("ACM") after January 1, 2021. To provide an on-island option for ACM, WGSL began accepting ACM on January 6, 2021.

With PVT unable to proceed with their planned expansion, they are expecting to close within the next 4 to 8 years. The City is gathering information to draft legislation for C&D waste recycling. The City is also working with Covanta to apply for permit modifications for H-POWER to be able to accept the wood or combustible fraction. In addition, Chapter 9 of the Revised Ordinances of Honolulu should be amended to include fees that reflect the actual cost of disposal and special handling required for asbestos and other special wastes.

5. Gas Monitoring

The gas collection and recovery system at WGSL continues to expand to accommodate landfilling operations while maintaining compliance. New air compliance regulations went into effect September 2021, which require additional monitoring around gas wells and surface emissions monitoring. The landfill is maintaining compliance with the new regulations.

COMPLIANCE WITH CONDITIONS OF ORDER

The LUC approved with modifications the Planning Commission's recommendations to approve a special use permit for WGSL and approved with modifications ENV's applications, subject to 17 conditions. The general description and status of each condition is as follows:

Condition No.	Description
1	**The WGSL shall close by no later than March 2, 2028. The WGSL shall not accept any form of waste after March 2, 2028.** Status: So noted
2	**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.** Status: All applicable permits/approvals have been obtained.
3	**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.** Status: Dust control measures and management plan have been provided for as part of the Solid Waste Management Permit issued by the DOH.
4	**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.** Status: So noted.
5	**By no later than December 31, 2022, the Applicant shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, the Applicant shall provide written notice to the Planning Commission and the LUC.** Status: See section on Status of Identifying and Developing New Landfill Sites on Oahu in this report.

Condition No.	Description
6	**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.** Status: See section on Alternative Technologies in this report.
7	**The Applicant shall provide semi-annual reports to the Planning Commission and the LUC regarding the following: a) The status of the efforts to identify and develop a new landfill site on Oahu, b) The WGSL's operations, including gas monitoring, c) The Applicant's compliance with the conditions imposed herein, d) The Landfill's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the landfill, e) The City's efforts to use alternative technologies, f) The extent to which waste is being diverted from the landfill and g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the landfill.** Status: Each year reports will be submitted to cover the six-month periods of November through April, and May through October.
8	**Closure Sequence "A" for the existing landfill cells at WGSL as shown on Exhibit "A12" must be completed, and final cover applied, by December 31, 2012.** Status: Closure Sequence "A" was commenced in June 2012 and the final cover was applied and substantially completed in December 2012.
9	**WGSL 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.** Status: 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. with the exception of H-POWER ash, which can be received 24 hours a day. Permission to extend hours to accommodate refuse loads during H-POWER outages shall be obtained from DOH on an as-needed basis.

Condition No.	Description
10	**The Applicant shall coordinate construction of the landfill cells in the expansion area and operation of WGSL 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.** Status: Coordination with HECO will be done to ensure that landfill construction and operations are adequately separated from overhead electrical power lines.
11	**The operations of the WGSL 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.** Status: Revised Ordinances of Honolulu § 21-5.680 is inapplicable to the WGSL as that Property is a public use and said ordinance therefore does not impact operations at WGSL. The operations of the WGSL are in compliance with any and all applicable rules and regulations of the DOH.
12	**The Planning Commission may at any time impose additional conditions when it becomes apparent that a modification is necessary and appropriate.** Status: So noted.
13	**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.** Status: So noted.
14	**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).** Status: Respective notifications will be made prior to termination of the use of the property as a landfill.

Condition No.	Description
15	**The Applicant 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 being considered by the City Council and the City Administration.** Status: See Condition No. 16 Status.
16	**The Applicant shall have a public hearing every three months in either Waianae, Maili, or Nanakuli to report on the status of their efforts to either reduce or continue the use of the WGSL.** Status: In accordance with the LUC Order dated November 1, 2019 , ENV identified a site in Nanakuli for the public hearings it holds every 3 months to report on the status of efforts to either reduce or continue the use of the WGSL and the efforts of the City Council and City Administration in regard to the continued use of the WGSL, including any funding arrangements being considered by the City Council and the City Administration. ENV publishes public notice of the public hearings in the newspaper and posts notice on www.honolulu.gov/opala. Summaries of the hearings are posted online at www.honolulu.gov/opala. During the reporting period, two public hearings were held at the Kalanianaole Beach Park in Nanakuli on January 18, 2022 and April 12, 2022. A total of four members of the public attended the hearings.
17	**If the landfill releases waste or leachate, the Applicant must immediately a) notify the surrounding community, including the Makakilo/Kapolei/Honokai Hale, Waianae Coast and Nanakuli-Maili Neighborhood Boards, Intervenors Schnitzer Steel Hawaii Corp., Ko Olina Community Association, Maile Shimabukuro and Colleen Hanabusa and b) take remedial actions to clean up the waste and to keep the waste from spreading. Such remedial actions shall include, but shall not be limited to, placing debris barriers and booms at the landfill's shoreline outfall to prevent waste from spreading into the ocean.** Status: So noted.

REGULATORY COMPLIANCE

1. Solid Waste Permit

The final solid waste permit for the proposed lateral expansion was approved by the 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), WGSL is legally continuing operations under the conditions of the previous permit and the current operations plan submitted to DOH. A draft permit renewal was received from DOH during this reporting period and is under review. New cell construction and drainage improvements are complete.

2. Consent Decree

In 2019, the City and Waste Management of Hawaii ("WMH"), the WGSL operator, reached a settlement with the U.S. Environmental Protection Agency ("EPA") and DOH over alleged violations of the Clean Water Act and State law. The alleged violations arose primarily from storm events that occurred in the winter of 2010-2011, during construction of the WGSL's western diversion drainage system. The EPA and DOH alleged that following the large rain storms the City and WMH violated the Clean Water Act by discharging pollutants without National Pollutant Discharge Elimination System Permit authorization and by discharging pollutants in storm water in violation of the terms of the Notice of General Permit Coverage for Industrial Stormwater issued to the City.

On July 3, 2019, the U.S. District Court for the District of Hawaii entered the consent decree in United States of America and State of Hawaii Department of Health v. Waste Management of Hawaii, Inc. and City and County of Honolulu, Case No. 1:19-cv-00224.

In accordance with the consent decree, the City paid a civil penalty of $62,500 to the United States and $62,500 in lieu of a civil penalty to the state Department of Land and Natural Resources Division of Aquatic Resources. Similarly, WMH paid $150,000 to each entity.

Also in accordance with the consent decree, the City and WMH implemented enhancements to WGSL's western diversion drainage system, revised the facility's stormwater pollution control plan, and applied for an individual stormwater permit for WGSL. DOH Clean Water Branch is reviewing the permit application. The City and WMH continue to comply with the detention basin operating and monitoring parameters set forth in the consent decree.

SOURCE REDUCTION, ALTERNATIVE TECHNOLOGIES AND LANDFILL DIVERSION

1. Source Reduction

Source reduction is the highest priority among the solid waste management practices and processing methods for the State. The City's source reduction efforts currently focus on providing public education to increase awareness of existing source reduction resources and encourage residents and businesses to prevent waste at the source.

a. Plastic Bag Ordinances – Since July 1, 2015, businesses are prohibited from providing plastic checkout bags and non-recyclable paper bags to their customers at the point of sale. Per Ordinance 12-8, amended by Ordinance 14-29, ENV is responsible for implementing and enforcing the ban. All information pertaining to the ban is posted online on www.honolulu.gov/opala. Businesses are required to submit annual compliance information to verify their compliance with the ban. The ban was amended by Ordinance 17-37 to require businesses to charge a minimum of 15 cents for each reusable, recyclable paper or compostable bag provided to customers at the point of sale, effective July 1, 2018. Beginning January 1, 2020, compostable bags were banned, and plastic film bags were no longer considered to be reusable bags. The ban was further amended by Ordinance 19-30 by changing the definition of "plastic" and amending the definitions for "plastic checkout bag" and "plastic film bag" as well as revising the exemptions list, effective April 1, 2020.

b. Disposable Food Ware Ordinance –The intent of Ordinance 19-30, commonly referred to as the Disposable Food Ware Ordinance ("DFWO"), is to protect human safety and welfare, and to improve environmental quality on the island, in the neighboring marine environment, and globally. The DFWO affects all food vendors and businesses operating within the City by amending the Oahu Plastic Bag Ban and restricting the use and sale of polystyrene foam food ware, disposable plastic food ware and disposable plastic service ware. The DFWO also prescribes when disposable service ware may be provided. Inspections for compliance with Ordinance 19-30 began in June 2021. On June 25, 2021, the City suspended the restrictions on disposable plastic service ware and polystyrene foam food ware contained in Section 41-27.2(b) and (d), Revised Ordinances of Honolulu, in an effort to promote and protect the public health, safety, and welfare of the residents of the City, and to provide relief from the economic impact directly and indirectly caused by COVID-19. Subsequently on December 10, 2021, Sections 41-27.2(a) and (c) and Section 41-27.4 were suspended to alleviate the economic hardship and inequity caused by the COVID-19 emergency and emergency actions that were taken to implement public health best practices, and the supply chain challenges caused by global shipping delays. The suspension of

Sections 41-27.2 and 41-27.4 continued through March 5, 2022. On March 3, 2022, ENV granted an exemption request by Chamber of Commerce Hawaii, Hawaii Restaurant Association, Retail Merchants of Hawaii, and Hawaii Food Industry Association, for the use of disposable plastic food ware. The exemption will run through September 5, 2022.

c. Source Reduction Working Group (SRWG) - In accordance with the Integrated Solid Waste Management Plan, ENV will convene a Source Reduction Working Group (SRWG) to determine the topics of interest related to source reduction and the initiatives that can be pursued by the City and other groups to encourage source reduction. ENV is reaching out to nonprofit groups and other potentially interested parties and working with a consultant to determine the format and structure for the meetings. Extended producer responsibility (EPR) and packaging will be major focus points. ENV will provide updates on the SRWG in future public hearings and reports.

2. H-POWER

The H-POWER waste-to-energy facility, operated by Covanta, continues to process over 750,000 tons of municipal solid waste each year. The facility has operated reliably for over 30 years and has disposed of about 20,000,000 tons of municipal solid waste, generating in excess of $20,000,000 annual net revenues from the sale of electricity, recovered metals and tipping fees, and avoided the importation of about 20,000,000 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 April 2, 2013. It enables the facility to process and burn bulky waste that previously had to be disposed at WGSL. With the addition of the third boiler, and other efforts to divert waste from WGSL, H-POWER now plays an even larger role in reducing waste disposal at WGSL.

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 the wastewater treatment plants. The 20,000 tons per year of sludge currently produced by these plants is now being diverted from WGSL to H-POWER. In addition, a corresponding amount of bulky waste, which was required to bulk the sludge at WGSL, 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 is not accepted at H-POWER and will continue to be disposed of at WGSL.

c. Tires - H-POWER's solid waste management permit issued by DOH allows acceptance of used auto tires collected by the City, including refuse collection, convenience centers and illegal dumping up to 400 tires per day or 65,000 tires per year.

d. In-Feed Waste Processing Improvements and Baling- ENV and Covanta are planning in-feed waste processing facility (WPF) improvements to the RDF Waste Processing Facility that will include a mobile baling system. The project will allow processing of bulky waste into RDF. The mobile baler will provide flexibility to store waste during extended maintenance outages. The baled waste would be stored and processed later, further reducing diversion of waste to WGSL. The equipment was tested in March 2021 and DOH approval is pending for operation and storing of bales. The balance of the WPF improvements are currently in the conceptual design phase.

e. Bulk Loads of Food Waste- Since March 1, 2017, bulk loads of commercially-generated spoiled food have been diverted from WGSL. ENV is evaluating technologies for the digestion of food waste.

3. Process Residue, Ash and Auto Shredder Residue

In July 2021, H-POWER began combusting its process residue on a trial basis. Operating data is being collected to determine whether to make the change permanent. This change has reduced the amount of process residue being disposed at the landfill from about 4000 tons per month to zero.

A contract for the processing and beneficial reuse of ash has been executed with Covanta Projects LLC. On June 1, 2022, ENV issued the Notice to Proceed for Phase I of the project. Phase I includes planning, permitting and 30% design. This project, when permitted and built, has the potential to divert at least 60% of the H-POWER ash that is currently disposed at WGSL.

Approximately 30,000 tons per year of ASR is disposed at WGSL. Although ASR was envisioned to be diverted to H-POWER, evaluation of ASR test data has concluded that the high Fluorine and Chlorine content of the material can be extremely harmful to the boiler. The matter is pending further evaluation and possible testing. The ash project may consider ASR processing as a potential future option.

4. Emerging Waste Conversion Technologies (EWCTs)

EWCTs such as plasma arc, gasification, thermal depolymerization and pyrolysis are mostly used overseas (i.e. Japan) for hazardous waste (very high tip fee), auto shredder fluff, ash, or other homogenous wastes. They have not worked well on mixed waste (trash) and has only been applied as research, demo, military or ship-bound or pilot scale projects in the last 15-20 years.

Based on publications and information received from professional associations that ENV partners with such as the Solid Waste Association of North America (SWANA) and from consultants such as HDR Engineering Inc., there are currently no operating commercial-scale EWCT facilities in North America. Any such facilities in North America that were operating in the past are no longer operating. For example, the Ottawa, Canada and St. Lucie County, Florida plasma arc gasification projects both failed to proceed past the planning, financing and permitting stage and are not active. The councilors and other political leaders in those cities suffered much embarrassment and blowback for pursuing such a risky and unproven technology for managing their trash.

EWCTs continues to face major obstacles including:

- inability to scale up to commercial-scale
- inability to obtain financing and regulatory permits
- excessively high cost
- excessively high amount of power purchased and imported from the utility
- high maintenance demands, lot of downtime and limited life

Until these challenges are resolved, EWCTs are not being considered by ENV.

5. Sludge Re-use

Further processing and reuse of sludge avoids the need to landfill this waste stream. Laie Wastewater Treatment Plant ("WWTP") converts green waste mixed with sewage sludge into compost by using the windrow process. Sand Island WWTP processes sewage sludge into fertilizer pellets using the Synagro process. Since 2014, the average Synagro pellet reuse has been 93% (7% landfilled). Note that there are times, especially during 2016, when the farms experience heavy rains and are not able to accept the pellets.

6. Materials Recycling

To present a complete waste flow picture for Oahu, the most current data available is for calendar year 2020. Although waste to WGSL and H-POWER is tracked

monthly by ENV, recycling data is provided by commercial recycling companies that are surveyed annually. Recycling data for 2020 was gathered and compiled during the first half of 2021; updated charts and analysis are posted below. Recycling data for 2020 is posted on www.honolulu.gov/opala.

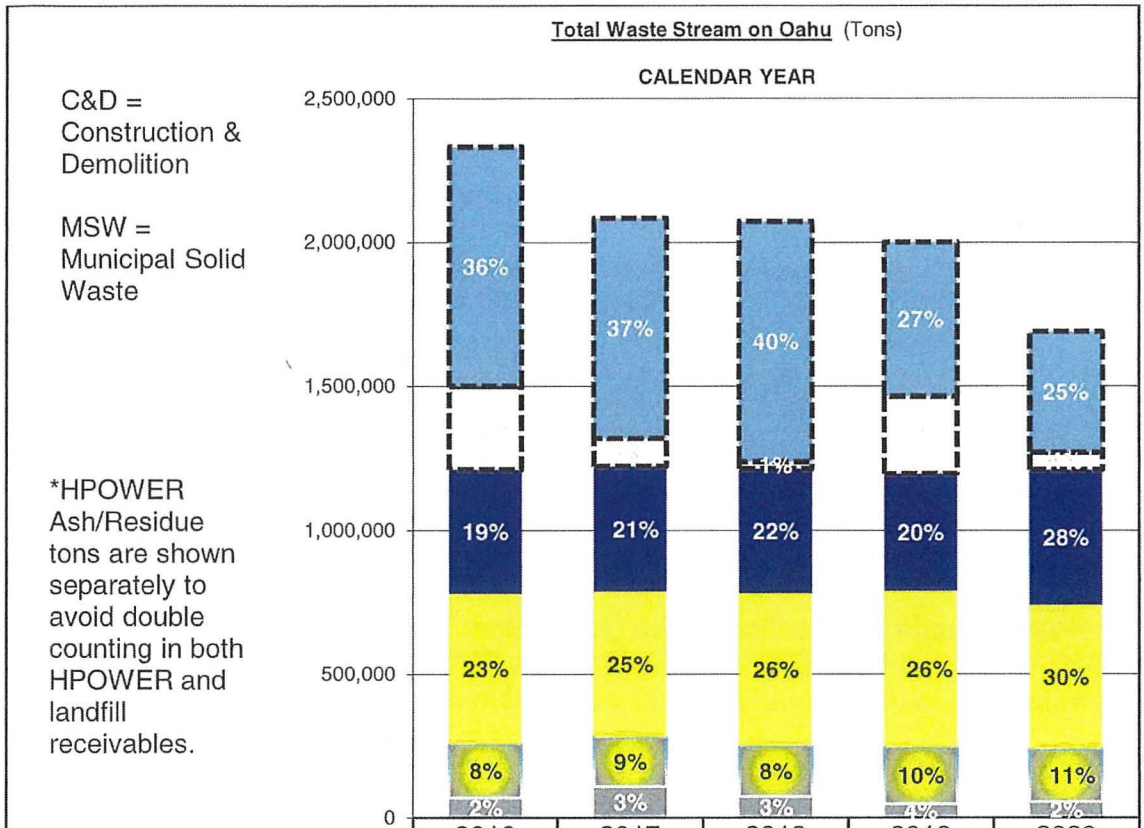
The island's waste data is presented in two charts:

1. TOTAL WASTE which includes Municipal Solid Waste ("MSW") and Construction and Demolition ("C&D") material, processed through recycling, waste-to-energy or landfilling; and
2. MSW only, processed through recycling, waste-to-energy or landfilling.

Both charts present data for the most recent five (5) calendar years (2016-2020). Moreover, this data shows how Oahu's waste was diverted from WGSL through recycling and waste-to-energy.

TOTAL WASTE data is presented in the chart below. For 2020, rates for C&D material recycling and disposal decreased overall from the 2019, while recycling and waste-to--energy combined to divert nearly 76% of waste from landfills.

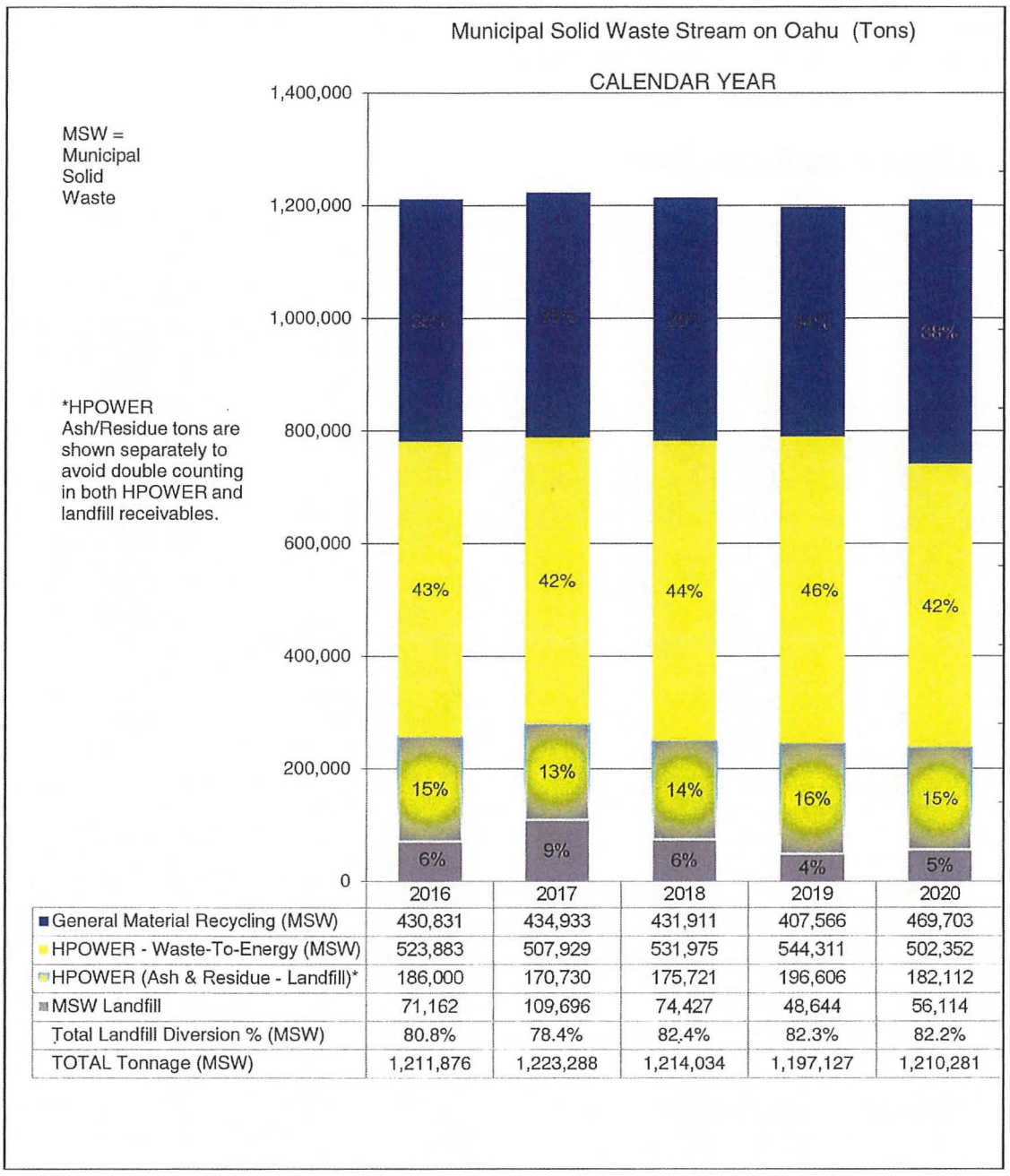
There are two landfills on Oahu: the City's WGSL, which is designated for MSW, and the privately-owned PVT Landfill, which is permitted for C&D waste only.



	2016	2017	2018	2019	2020
C & D - Recycling	830,414	763,279	833,566	534,722	417,854
C & D Landfill	289,924	97,426	24,939	268,796	61,694
General Material Recycling (MSW)	430,831	434,933	431,911	407,566	469,703
HPOWER - Waste-To-Energy (MSW)	523,883	507,929	531,975	544,311	502,352
HPOWER (Ash & Residue - Landfill)*	186,000	170,730	175,721	196,606	182,112
MSW Landfill	71,162	109,696	74,427	48,644	56,114
Total Landfill Diversion % (MSW / C&D)	77.6%	82.7%	88.5%	76.0%	83.6%
TOTAL Tonnage	2,332,214	2,083,993	2,072,539	2,000,645	1,689,829

MSW ONLY data is presented in the chart below. Robust recycling and waste-to-energy rates continue to contribute to the steady decline of MSW tonnage going to the WGSL. Considering MSW only and landfill diversion specific to the WGSL, the landfill diversion rate achieved through recycling and waste-to-energy is at 82.2%, and the general material recycling rate increased to 38%, an increase of 4% from 2019. Landfill diversion rates for the most recent five (5) years at WGSL are charted below, allowing for a better visual assessment of the data. Important to note that 5% of the approximate 20% of material landfilled at WGSL

in 2020, was MSW, with the rest consisting of ash and noncombustible residue from H-POWER.



	2016	2017	2018	2019	2020
General Material Recycling (MSW)	430,831	434,933	431,911	407,566	469,703
HPOWER - Waste-To-Energy (MSW)	523,883	507,929	531,975	544,311	502,352
HPOWER (Ash & Residue - Landfill)*	186,000	170,730	175,721	196,606	182,112
MSW Landfill	71,162	109,696	74,427	48,644	56,114
Total Landfill Diversion % (MSW)	80.8%	78.4%	82.4%	82.3%	82.2%
TOTAL Tonnage (MSW)	1,211,876	1,223,288	1,214,034	1,197,127	1,210,281

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 470,000 tons in 2020. Recycling of C&D materials, such as concrete, rock and asphalt, contributed an additional 417,854 tons to the recycling rates, for a total of

almost 900,000 tons recycled for 2020. 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 since 2015 due to ongoing major projects. In 2020, there was a significant drop in C&D Recycling due to a decrease in construction and the stored recyclable material at the private C&D landfill.

Yearly Recycling Rates (tons)

Year	General Material Recycling	C&D Recycling	Total Recycled
2020	469,703	417,854	887,557
2019	407,566	534,722	942,288
2018	431,911	868,617	1,300,528
2017	434,933	763,279	1,198,212
2016	430,831	830,414	1,261,245
2015	449,153	731,865	1,181,018
2014	475,953	401,335	877,286
2013	477,011	257,287	734,298
2012	487,159	179,906	667,065
2011	490,061	181,087	671,148
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

Oahu Recycling 2020	
Material Type	**Amount in tons**
PAPER	
Corrugated Cardboard	41,812
Newspaper	8,574
Office Paper	5,213
Other Paper	1,060
METALS	
Ferrous (includes autos)	139,366
Non-Ferrous (includes aluminum)	10,855
GLASS	10,947
PLASTIC	4,799
TIRES	7,783
AUTO BATTERIES	9,193
ELECTRONIC SCRAP	1,000
GREEN WASTE (yard trimmings)	169,933
WOOD WASTE/PALLETS	8,715
CONSTRUCTION & DEMOLITION (rock, concrete, asphalt)	417,854
FOOD WASTE	38,361
OTHER REUSE (Goodwill, Salvation Army)	11,821
TOTAL	887,557

The City's efforts to increase residential recycling rates have continued with its ongoing efforts to educate residents about the value and benefits of its three-cart curbside program, and the continued promotion and rejuvenation of its condominium recycling assistance program. Additionally, the City requires commercial sector recycling through mandatory laws established by City ordinance, and provides assistance to businesses to setup and expand their recycling programs.

a. Curbside Recycling – Curbside recycling participation remains strong and material recovery rates are increasing every year. ENV completed the final phase expansion of the fully-automated 3-cart curbside recycling program May 2010. There are currently 170,000 homes participating in the program, capturing material at a rate of 23,000 tons of mixed recyclables and 75,000 tons of green waste per year. Increased public experience with identifying and sorting recyclables is producing higher results for the City's curbside recycling program. The program continues to be evaluated to identify strategies for improving participation, efficiencies and to decrease contamination.

b. Multi-Material Recycling Centers – Recycling is available to those without curbside collection service. There are two City recycling drop-off locations in Haleiwa, one fronting its Waialua Base Yard (Emerson Rd.) and the other at its Kawailoa Transfer Station. Both locations feature several 96-gallon blue carts, complete with instructional signage and stickers for the community to use. All blue cart recyclables are acceptable, including plastics (1 & 2), glass bottles and jars, metal cans, newspaper, paper bags, corrugated cardboard and white and colored office paper.

c. Condominium Recycling – The City continues to promote condominium recycling through a program reimbursing 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 electronic 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. In 2015, the law was amended to require electronic device manufacturers to establish drop-off locations for e-waste and prohibited mail-back only recycling options for some devices. ENV continues 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 policy established in the mid 1990's, which requires office buildings to recycle office paper, bars/restaurants to recycle glass and a variety of food operations to recycle food waste. It is no longer mandatory for Advance Disposal Fee ("ADF") glass to be sorted by the liquor establishments but the recyclers still receive ADF glass through their commercial accounts. The City suspended the ADF portion of the glass relating to the glass ordinance but the City still receives the State Subsidy for ADF glass the recyclers are collecting. State legislation is needed to increase the fee to lift the suspension on the ADF glass. Disposal site bans/restrictions divert materials from WGSL and H-POWER, including green waste, cardboard, metals, tires, auto batteries, and e-waste. The City is encouraging businesses to generate less food waste and to support food security programs. 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. Public education – Public education regarding recycling is ongoing and includes the distribution of brochures and print materials, dissemination of information via City's new refuse website, www.honolulu.gov/opala, WasteLine e-newsletter and virtual presentations. There has been an increase in social media participation to assist with the public education program. Source reduction will be another component to add to our public education program. Opala.org will have a redirect to the new website for the next two (2) years. The transition period to phase out the old website will be approximately 2 years.

Composting workshops – Composting workshops presented by City staff were reinstated as part of the City's public education program. The workshop teaches residents to manage green waste at home by utilizing the green cart for large items such as branches and to aerobically compost the grass trimmings, leaves and small diameter branches. The City is also gathering information to provide food waste composting through the use of worms called vermiculture and beneficial microbes with the Bokashi method. Due to the pandemic, composting workshops are through a virtual format.

Recycling education in the schools – Recycling education shows presented by the Honolulu Theatre for Youth ("HTY") combined with classroom activity books educate our youth to become expert recyclers and encourage them to support their family to properly sort their waste at home. Every year, the program reaches approximately 20,000 students and teachers. The 12th season included a feature on HTY's HI-Way program aired through the television media with a focus on food waste reduction and the introduction of Fats, Oil and Grease. This program features environmental issues including solid waste management and concluded in late February 2022.

FUNDING ARRANGEMENTS

Funding arrangements for the landfill and alternate technologies have been requested and approved for the Fiscal Year 2022 (Ordinance 21-21) and 2023 (Ordinance 22-14) Capital Improvements (CIP) Budgets. Copies of the CIP budget bills and ordinances are available on the Honolulu City Council website www.honolulu.gov/council, follow the link to Council Bills, Resolutions, and Communications.

CONCLUSION

The foregoing report is submitted in accordance with reporting requirements set forth in the LUC Order dated November 1, 2019. 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 17 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 WGSL.

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.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 768-3486 • FAX: (808) 768-3487 • WEBSITE: http://envhonolulu.org

RICK BLANGIARDI
MAYOR

ROGER BABCOCK, JR., Ph.D., P.E.
DIRECTOR

MICHAEL O'KEEFE
DEPUTY DIRECTOR

IN REPLY REFER TO:
RH 22-021

January 12, 2023

RETURN RECEIPT REQUESTED
7018 0680 0001 2352 1664

Mr. Dan Giovanni, Chair
Land Use Commission
Department of Business, Economic Development & Tourism
State of Hawaii
235 South Beretania Street, Room 406
Honolulu, Hawaii 96813

LAND USE COMMISSION
STATE OF HAWAII
23 JAN 19 P4:51

RETURN RECEIPT REQUESTED
7018 0680 0001 2352 1671

Mr. Brian Lee, Chair
Planning Commission
c/o Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Messrs. Giovanni and Lee:

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

In accordance with the November 1, 2019, State Land Use Commission Order Approving with Modifications the City and County of Honolulu Planning Commission's Recommendation to Approve Special Use Permit, the attached Sixth Semi-Annual Report is submitted for your information. This report covers the period from May 1, 2022 through October 31, 2022, unless otherwise stated in the report.

The report is being concurrently submitted to the Planning Commission and Land Use Commission.

Sincerely,

Roger Babcock Jr.

Roger Babcock, Jr., Ph.D., P.E.
Director

Attachment

cc: Jeffrey Hu - COR

EXHIBIT "A12"

SIXTH SEMI-ANNUAL REPORT

STATUS OF ACTIONS TAKEN TO COMPLY WITH THE STATE LAND USE COMMISSION'S ORDER DATED NOVEMBER 1, 2019 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

January 2023

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PREFACE

This report was prepared in accordance with the State of Hawaii Land Use Commission's ("LUC") Order Approving With Modifications the City and County of Honolulu Planning Commission's Recommendations to Approve a Special Use Permit, dated November 1, 2019 ("LUC Order"). A copy of the LUC Order is available on the LUC's website at https://luc.hawaii.gov/wp-content/uploads/2019/11/SP09-403-final-FOFCOLDO-2019.pdf.

Under Condition No. 7 of the LUC Order, the Applicant (Department of Environmental Services, City and County of Honolulu, hereinafter "ENV") shall provide semi-annual reports to the Planning Commission of the City and County of Honolulu ("Planning Commission") and the LUC regarding the following:

a) The status of the efforts to identify and develop a new landfill site on Oahu,

b) The Waimanalo Gulch Sanitary Landfill's ("WGSL") operations, including gas monitoring,

c) ENV's compliance with the conditions imposed herein,

d) The WGSL's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the WGSL,

e) The City's efforts to use alternative technologies,

f) The extent to which waste is being diverted from the WGSL and

g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the WGSL.

This is the sixth semi-annual report submitted in accordance with Condition No. 7 and covers the period from May 1, 2022 through October 31, 2022, or as otherwise stated.

STATUS OF IDENTIFYING AND DEVELOPING NEW LANDFILL SITES ON OAHU

1. General

Condition No. 5 of the LUC Order requires that, by no later than December 31, 2022, ENV shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, ENV shall provide written notice to the Planning Commission and the LUC.

2. Current Status

The City has been engaged in an ongoing effort to identify a landfill site. Condition 4 of the prior LUC Order in Docket No. SP09-403, which was certified on October 22, 2009 ("2009 LUC Order"), stated:

"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."

In accordance with Condition 4 of the 2009 LUC Order, Mayor's Advisory Committee on Landfill Site Selection ("MACLSS") met in 2011 and 2012, and completed its final report on September 25, 2012. All committee meetings were open to the public and to public comment. In the final report, 11 potential sites were identified and ranked based on community criteria. Handouts provided to the MACLSS, the Group Memory of each meeting, and the final report are posted online at www.honolulu.gov/opala.

The City retained a consultant to further review and analyze the sites based on technical and engineering considerations. The report, "Assessment of Municipal Solid Waste Handling Requirements for the Island of Oahu", was completed in November 2017 and is available online at www.honolulu.gov/opala.

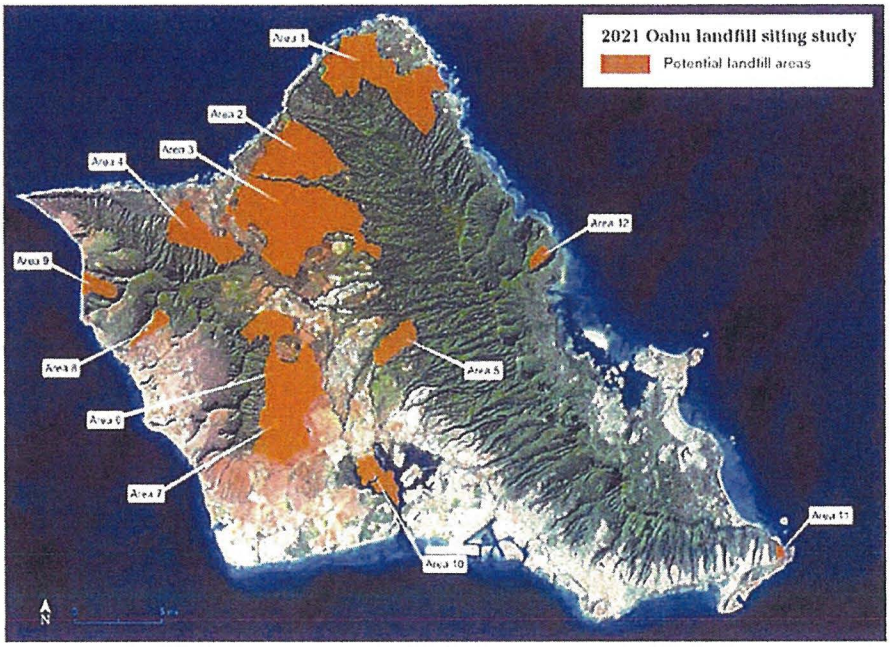
The passage of Act 73 (2020) prohibits the construction, modification, or expansion of waste disposal facilities without first establishing a buffer zone of no less than one-half mile around the waste or disposal facility. Although not required, the active area of WGSL is in compliance with this requirement.

An initial review of the available sites in Fall 2020 reduced the number of potential future landfill sites to four (Keaau, Upland Kahuku 1 and Upland Pupukea 1 and 2) based on sites short-listed in the 2017 landfill siting report. However, additional review in January 2021 determined that a more thorough review and evaluation of new locations island-wide with respect to Act 73 is warranted.

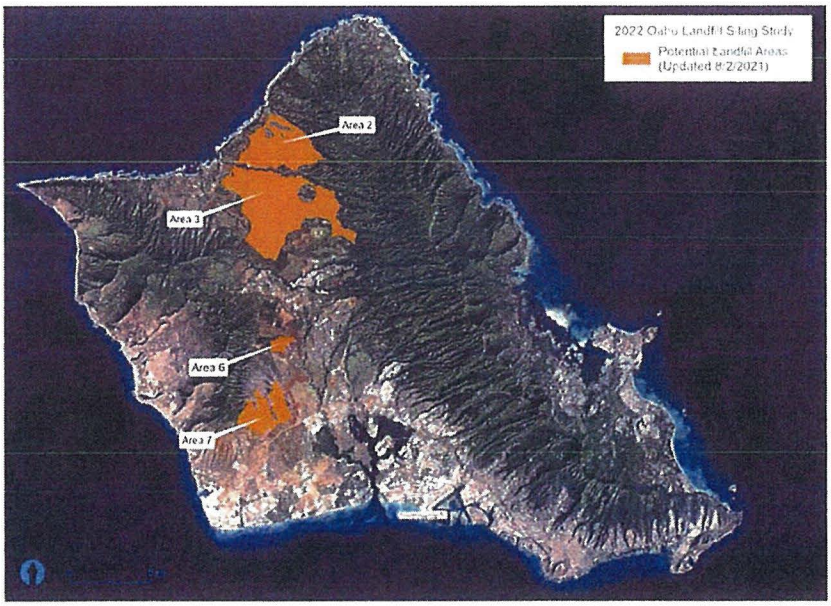
On April 27, 2021, ENV presented an update on integrated solid waste management and progress towards a future landfill site at a joint City Council committee

meeting. ENV shared a preliminary map showing areas compliant with Act 73 where a landfill could potentially be located. The consultant further refined the areas with respect to Act 73 and other constraints.

PROGRESS TOWARD FUTURE LANDFILL SITE



On August 26, 2021, ENV presented a landfill siting update to joint City Council committee. ENV shared a further refined map of areas where a landfill could potentially be located.



On August 27, 2021, ENV launched a new landfill siting website containing an interactive map tool, resident survey and questions and answers.

On September 24, 2021, Mayor Rick Blangiardi appointed nine members to the Landfill Advisory Committee ("LAC"), which was established in accordance with Section 4-103 of the Revised Charter of the City and County of Honolulu 1973 (2017 edition), as revised.

The LAC's inaugural meeting was held on October 4, 2021. A total of eight meetings were conducted with the last meeting held on June 6, 2022. The LAC evaluated and scored six proposed landfill sites shown below. The scores were used to produce the site ranking, but the committee recommended that none of the sites are suitable due to their proximity to the drinking water aquifer (i.e., in the Board of Water Supply's "No Pass Zone"). The LAC report has been finalized.

On October 24, 2022, ENV briefed the board members of the Honolulu Board of Water Supply ("BWS") about the status of the landfill site selection, the urgency of the City's need to identify an alternative landfill site by December 31, 2022, and the LAC's reservations relating to the six proposed sites because of their location in the BWS No Pass Zone. ENV sought clarity on BWS' legal authority over landfill siting in the No Pass Zone; asked whether that authority was exercised; and if not exercised, when the City should seek such a determination from the BWS. The BWS Board did not provide a response to ENV's inquiry at the informational briefing.

As of the close of the reporting period of this report, the City continued to communicate with the BWS about the six proposed landfill sites.

To learn more about the LAC or view the report, the public should visit www.honolulu.gov/opala/newlandfill. ENV is continuing to periodically update the City Council and Neighborhood Boards.

3. District Boundary Amendment

In 2020, ENV began preparing an application for a District Boundary Amendment (DBA) to change the zoning of the WGSL site from Agricultural to Urban. ENV also began the environmental review process for the DBA. The EIS and DBA application are not being pursued at this time pending further development of landfill siting activities.

STATUS OF LANDFILL OPERATIONS

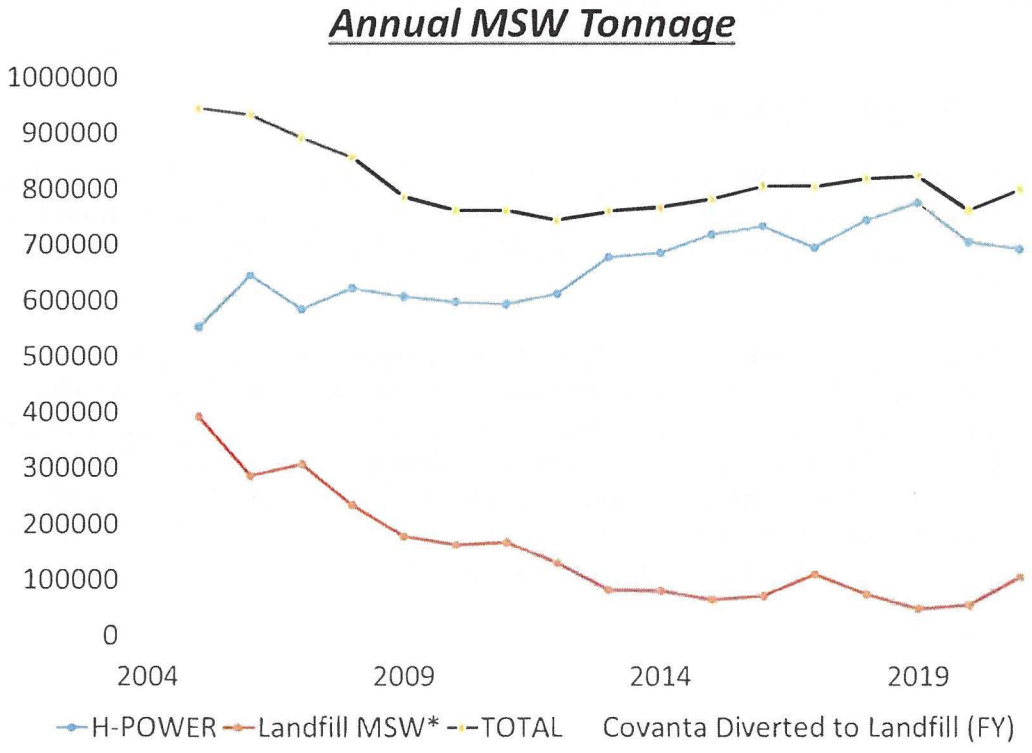
1. Tonnage

Over the period beginning May 1, 2022 through October 31, 2022, the WGSL received the following amounts of material:

H-POWER Ash.....	74,147 tons
H-POWER Residue.....	27 tons
Municipal Solid Waste (MSW).....	38,821 tons

During the reporting period, H-POWER combusted its process residue as part of a trial project. This project is discussed in the Source Reduction, Alternative Technologies and Landfill Diversion section of this report.

The following graph illustrates the reduction of MSW delivered to WGSL (red line) generally as a result of source reduction and diverting more waste from the landfill to H-POWER (blue line). The total MSW (black line) reflects the MSW reduction during the Great Recession that began in 2008, a slow but steady economic recovery and another MSW reduction during the COVID-19 pandemic that began in 2019. Slightly higher landfill tonnages in 2017 and 2021 were due to facility refurbishment projects and major turbine-generator maintenance. For 2022, about 60,000 tons MSW to landfill is expected.



Future planned improvement projects including a second dump condenser are intended to further reduce the amount of MSW diverted to WGSL during H-POWER maintenance outages.

2. Remaining Capacity

As of March 30, 2022 (the date of the last aerial survey), WGSL has 4,331,945 cubic yards of airspace remaining. Using the average fill rates and airspace utilization between March 27, 2021 and March 30, 2022 (time between surveys), WGSL has approximately 15 years of combined MSW and ash life remaining or could reach capacity in late 2036. This estimate does not consider the impact from PVT Landfill's potential closure within the next eight years. In addition, this estimate does not consider advances in technology and additional landfill diversion, discussed further in this report, which could reduce the City's use of WGSL, thereby slowing the rate of landfilling and delaying the date upon which it will reach capacity. The March 2022 survey data was reported to DOH in the annual operating report dated July 28, 2022. The next aerial survey will be conducted in Spring 2023. The data will be compiled and the results will be reported to DOH in the next annual operating report due July 31, 2023.

3. Current Status of WGSL

Activities conducted during the reporting period include MSW landfilling in Cells E-5, E-6, E-7 and E-8 and ash landfilling in Cells E-8 and E-9.

4. Impact of Potential PVT Landfill Closure

PVT Landfill informed haulers that due to the passage of Act 73, PVT would no longer be an option for disposal of asbestos containing material ("ACM") after January 1, 2021. To provide an on-island option for ACM, WGSL began accepting ACM on January 6, 2021.

With PVT unable to proceed with their planned expansion, they are expecting to close within the next eight years according to a recent interview with Spectrum News. The City is gathering information to draft legislation for C&D waste recycling. The City is also working with Covanta to apply for permit modifications for H-POWER to be able to accept the wood or combustible fraction. In addition, Chapter 9 of the Revised Ordinances of Honolulu should be amended to include fees that reflect the actual cost of disposal and special handling required for asbestos and other special wastes.

5. Gas Monitoring

The gas collection and recovery system at WGSL continues to expand to accommodate landfilling operations while maintaining compliance. New air compliance regulations went into effect September 2021, which require additional monitoring around gas wells and surface emissions monitoring. The landfill is maintaining compliance with the new regulations.

COMPLIANCE WITH CONDITIONS OF ORDER

The LUC approved with modifications the Planning Commission's recommendations to approve a special use permit for WGSL and approved with modifications ENV's applications, subject to 17 conditions. The general description and status of each condition is as follows:

Condition No.	Description
1	**The WGSL shall close by no later than March 2, 2028. The WGSL shall not accept any form of waste after March 2, 2028.** Status: So noted
2	**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.** Status: All applicable permits/approvals have been obtained.
3	**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.** Status: Dust control measures and management plan have been provided for as part of the Solid Waste Management Permit issued by the DOH.
4	**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.** Status: So noted.
5	**By no later than December 31, 2022, the Applicant shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, the Applicant shall provide written notice to the Planning Commission and the LUC.** Status: See section on Status of Identifying and Developing New Landfill Sites on Oahu in this report.

Condition No.	Description
6	**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.** Status: See section on Alternative Technologies in this report.
7	**The Applicant shall provide semi-annual reports to the Planning Commission and the LUC regarding the following: a) The status of the efforts to identify and develop a new landfill site on Oahu, b) The WGSL's operations, including gas monitoring, c) The Applicant's compliance with the conditions imposed herein, d) The Landfill's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the landfill, e) The City's efforts to use alternative technologies, f) The extent to which waste is being diverted from the landfill and g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the landfill.** Status: Each year reports will be submitted to cover the six-month periods of November through April, and May through October.
8	**Closure Sequence "A" for the existing landfill cells at WGSL as shown on Exhibit "A12" must be completed, and final cover applied, by December 31, 2012.** Status: Closure Sequence "A" was commenced in June 2012 and the final cover was applied and substantially completed in December 2012.
9	**WGSL 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.** Status: 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. with the exception of H-POWER ash, which can be received 24 hours a day. Permission to extend hours to accommodate refuse loads during H-POWER outages shall be obtained from DOH on an as-needed basis.

Condition No.	Description
10	**The Applicant shall coordinate construction of the landfill cells in the expansion area and operation of WGSL 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.** Status: Coordination with HECO will be done to ensure that landfill construction and operations are adequately separated from overhead electrical power lines.
11	**The operations of the WGSL 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.** Status: Revised Ordinances of Honolulu § 21-5.680 is inapplicable to the WGSL as that Property is a public use and said ordinance therefore does not impact operations at WGSL. The operations of the WGSL are in compliance with any and all applicable rules and regulations of the DOH.
12	**The Planning Commission may at any time impose additional conditions when it becomes apparent that a modification is necessary and appropriate.** Status: So noted.
13	**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.** Status: So noted.
14	**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).** Status: Respective notifications will be made prior to termination of the use of the property as a landfill.

Condition No.	Description
15	**The Applicant 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 being considered by the City Council and the City Administration.** Status: See Condition No. 16 Status.
16	**The Applicant shall have a public hearing every three months in either Waianae, Maili, or Nanakuli to report on the status of their efforts to either reduce or continue the use of the WGSL.** Status: In accordance with the LUC Order dated November 1, 2019 , ENV identified a site in Nanakuli for the public hearings it holds every 3 months to report on the status of efforts to either reduce or continue the use of the WGSL and the efforts of the City Council and City Administration in regard to the continued use of the WGSL, including any funding arrangements being considered by the City Council and the City Administration. ENV publishes public notice of the public hearings in the newspaper and posts notice on www.honolulu.gov/opala. Summaries of the hearings are posted online at www.honolulu.gov/opala. During the reporting period, two public hearings were held at the Kalanianaole Beach Park in Nanakuli on August 2, 2022 and October 18, 2022. A total of four members of the public attended the hearings.
17	**If the landfill releases waste or leachate, the Applicant must immediately a) notify the surrounding community, including the Makakilo/Kapolei/Honokai Hale, Waianae Coast and Nanakuli-Maili Neighborhood Boards, Intervenors Schnitzer Steel Hawaii Corp., Ko Olina Community Association, Maile Shimabukuro and Colleen Hanabusa and b) take remedial actions to clean up the waste and to keep the waste from spreading. Such remedial actions shall include, but shall not be limited to, placing debris barriers and booms at the landfill's shoreline outfall to prevent waste from spreading into the ocean.** Status: So noted.

REGULATORY COMPLIANCE

1. Solid Waste Permit

The final solid waste permit for the proposed lateral expansion was approved by the 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), WGSL is legally continuing operations under the conditions of the previous permit and the current operations plan submitted to DOH. A permit renewal public notice was posted on November 14, 2022. New cell construction and drainage improvements are complete.

2. Consent Decree

In 2019, the City and Waste Management of Hawaii ("WMH"), the WGSL operator, reached a settlement with the U.S. Environmental Protection Agency ("EPA") and DOH over alleged violations of the Clean Water Act and State law. The alleged violations arose primarily from storm events that occurred in the winter of 2010-2011, during construction of the WGSL's western diversion drainage system. The EPA and DOH alleged that following the large rain storms the City and WMH violated the Clean Water Act by discharging pollutants without National Pollutant Discharge Elimination System Permit authorization and by discharging pollutants in storm water in violation of the terms of the Notice of General Permit Coverage for Industrial Stormwater issued to the City.

On July 3, 2019, the U.S. District Court for the District of Hawaii entered the consent decree in United States of America and State of Hawaii Department of Health v. Waste Management of Hawaii, Inc. and City and County of Honolulu, Case No. 1:19-cv-00224.

In accordance with the consent decree, the City paid a civil penalty of $62,500 to the United States and $62,500 in lieu of a civil penalty to the state Department of Land and Natural Resources Division of Aquatic Resources. Similarly, WMH paid $150,000 to each entity.

Also in accordance with the consent decree, the City and WMH implemented enhancements to WGSL's western diversion drainage system, revised the facility's stormwater pollution control plan, and applied for an individual stormwater permit for WGSL. A public notice for the permit is planned to be posted on December 15, 2022. The City and WMH continue to comply with the detention basin operating and monitoring parameters set forth in the consent decree.

SOURCE REDUCTION, ALTERNATIVE TECHNOLOGIES AND LANDFILL DIVERSION

1. Source Reduction

Source reduction is the highest priority among the solid waste management practices and processing methods for the State. The City's source reduction efforts currently focus on providing public education to increase awareness of existing source reduction resources and encourage residents and businesses to prevent waste at the source.

a. Plastic Bag Ordinances – Since July 1, 2015, businesses are prohibited from providing plastic checkout bags and non-recyclable paper bags to their customers at the point of sale. Per Ordinance 12-8, amended by Ordinance 14-29, ENV is responsible for implementing and enforcing the ban. All information pertaining to the ban is posted online on www.honolulu.gov/opala. Businesses are required to submit annual compliance information to verify their compliance with the ban. The ban was amended by Ordinance 17-37 to require businesses to charge a minimum of 15 cents for each reusable, recyclable paper or compostable bag provided to customers at the point of sale, effective July 1, 2018. Beginning January 1, 2020, compostable bags were banned, and plastic film bags were no longer considered to be reusable bags. The ban was further amended by Ordinance 19-30 by changing the definition of "plastic" and amending the definitions for "plastic checkout bag" and "plastic film bag" as well as revising the exemptions list, effective April 1, 2020.

b. Disposable Food Ware Ordinance – The intent of Ordinance 19-30, commonly referred to as the Disposable Food Ware Ordinance ("DFWO"), is to protect human safety and welfare, and to improve environmental quality on the island, in the neighboring marine environment, and globally. The DFWO affects all food vendors and businesses operating within the City by amending the Oahu Plastic Bag Ban and restricting the use and sale of polystyrene foam food ware, disposable plastic food ware and disposable plastic service ware. The DFWO also prescribes when disposable service ware may be provided. Inspections for compliance with Ordinance 19-30 began in June 2021. On June 25, 2021, the City suspended the restrictions on disposable plastic service ware and polystyrene foam food ware contained in Section 41-27.2(b) and (d), Revised Ordinances of Honolulu, in an effort to promote and protect the public health, safety, and welfare of the residents of the City, and to provide relief from the economic impact directly and indirectly caused by COVID-19. Subsequently on December 10, 2021, Sections 41-27.2(a) and (c) and Section 41-27.4 were suspended to alleviate the economic hardship and inequity caused by the COVID-19 emergency and emergency actions that were taken to implement public health best practices, and the supply chain challenges caused by global shipping delays. The suspension of

Sections 41-27.2 and 41-27.4 continued through March 5, 2022. On March 3, 2022, ENV granted an exemption request by Chamber of Commerce Hawaii, Hawaii Restaurant Association, Retail Merchants of Hawaii, and Hawaii Food Industry Association, for the use of disposable plastic food ware. The exemption will run through September 5, 2022.

c. Source Reduction Working Group (SRWG) - In accordance with the Integrated Solid Waste Management Plan, ENV will convene a Source Reduction Working Group (SRWG) to determine the topics of interest related to source reduction and the initiatives that can be pursued by the City and other groups to encourage source reduction. ENV has a contractor on board for facilitation of the group and is formulating the plan for the group. A start in Spring of 2023 is anticipated. ENV will be reaching out to nonprofit groups and other potentially interested parties to determine interest in participation. Extended producer responsibility (EPR) and packaging will be major focus points. ENV will provide updates on the SRWG in future public hearings and reports.

2. H-POWER

The H-POWER waste-to-energy facility, operated by Covanta, continues to process over 750,000 tons of municipal solid waste each year. The facility has operated reliably for over 30 years and has disposed of about 20,000,000 tons of municipal solid waste, generating in excess of $20,000,000 annual net revenues from the sale of electricity, recovered metals and tipping fees, and avoided the importation of about 20,000,000 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 April 2, 2013. It enables the facility to process and burn bulky waste that previously had to be disposed at WGSL. With the addition of the third boiler, and other efforts to divert waste from WGSL, H-POWER now plays an even larger role in reducing waste disposal at WGSL.

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 the wastewater treatment plants. The 20,000 tons per year of sludge currently produced by these plants is now being diverted from WGSL to H-POWER. In addition, a corresponding amount of bulky waste, which was required to bulk the sludge at WGSL, 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 is not accepted at H-POWER and will continue to be disposed of at WGSL.

c. Tires - H-POWER's solid waste management permit issued by DOH allows acceptance of used auto tires collected by the City, including refuse collection, convenience centers and illegal dumping up to 400 tires per day or 65,000 tires per year.

d. In-Feed Waste Processing Improvements and Baling- ENV and Covanta are planning in-feed waste processing facility (WPF) improvements to the RDF Waste Processing Facility that will include a mobile baling system. The project will allow processing of bulky waste into RDF. The mobile baler will provide flexibility to store waste during extended maintenance outages. The baled waste would be stored and processed later, further reducing diversion of waste to WGSL. The equipment was tested in March 2021 and DOH approval is pending for operation and storing of bales. The balance of the WPF improvements are currently in the conceptual design phase.

e. Bulk Loads of Food Waste- Since March 1, 2017, bulk loads of commercially-generated spoiled food have been diverted from WGSL. ENV is evaluating technologies for the digestion of food waste.

3. Process Residue, Ash and Auto Shredder Residue

In July 2021, H-POWER began combusting its process residue on a trial basis. Operating data is being collected to determine whether to make the change permanent. This change has reduced the amount of process residue being disposed at the landfill from about 4000 tons per month to zero.

A contract for the processing and beneficial reuse of ash has been executed with Covanta Projects LLC. On June 1, 2022, ENV issued the Notice to Proceed for Phase I of the project. Phase I includes planning, permitting and 30% design. This project, when permitted and built, has the potential to divert at least 60% of the H-POWER ash that is currently disposed at WGSL.

Approximately 30,000 tons per year of ASR is disposed at WGSL. Although ASR was envisioned to be diverted to H-POWER, evaluation of ASR test data has concluded that the high Fluorine and Chlorine content of the material can be extremely harmful to the boiler. The matter is pending further evaluation and possible testing. The ash project may consider ASR processing as a potential future option.

4. Emerging Waste Conversion Technologies (EWCTs)

EWCTs such as plasma arc, gasification, thermal depolymerization and pyrolysis are mostly used overseas (i.e. Japan) for hazardous waste (very high tip fee), auto shredder fluff, ash, or other homogenous wastes. They have not worked well on mixed waste (trash) and has only been applied as research, demo, military or ship-bound or pilot scale projects in the last 15-20 years.

Based on publications and information received from professional associations that ENV partners with such as the Solid Waste Association of North America (SWANA) and from consultants such as HDR Engineering Inc., there are currently no operating commercial-scale EWCT facilities in North America. Any such facilities in North America that were operating in the past are no longer operating. For example, the Ottawa, Canada and St. Lucie County, Florida plasma arc gasification projects both failed to proceed past the planning, financing and permitting stage and are not active. The councilors and other political leaders in those cities suffered much embarrassment and blowback for pursuing such a risky and unproven technology for managing their trash.

EWCTs continues to face major obstacles including:

- inability to scale up to commercial-scale
- inability to obtain financing and regulatory permits
- excessively high cost
- excessively high amount of power purchased and imported from the utility
- high maintenance demands, lot of downtime and limited life

Until these challenges are resolved, EWCTs are not being considered by ENV.

5. Sludge Re-use

Further processing and reuse of sludge avoids the need to landfill this waste stream. Laie Wastewater Treatment Plant ("WWTP") converts green waste mixed with sewage sludge into compost by using the windrow process. Sand Island WWTP processes sewage sludge into fertilizer pellets using the Synagro process. Since 2014, the average Synagro pellet reuse has been 93% (7% landfilled). Note that there are times, especially during 2016, when the farms experience heavy rains and are not able to accept the pellets.

6. Materials Recycling

To present a complete waste flow picture for Oahu, the most current data available is for calendar year 2020. Although waste to WGSL and H-POWER is tracked monthly by ENV, recycling data is provided by commercial recycling companies that are surveyed annually. Recycling data for 2020 was gathered and compiled during the first half of 2021; updated charts and analysis are posted below. Recycling data for 2020 is posted on www.honolulu.gov/opala.

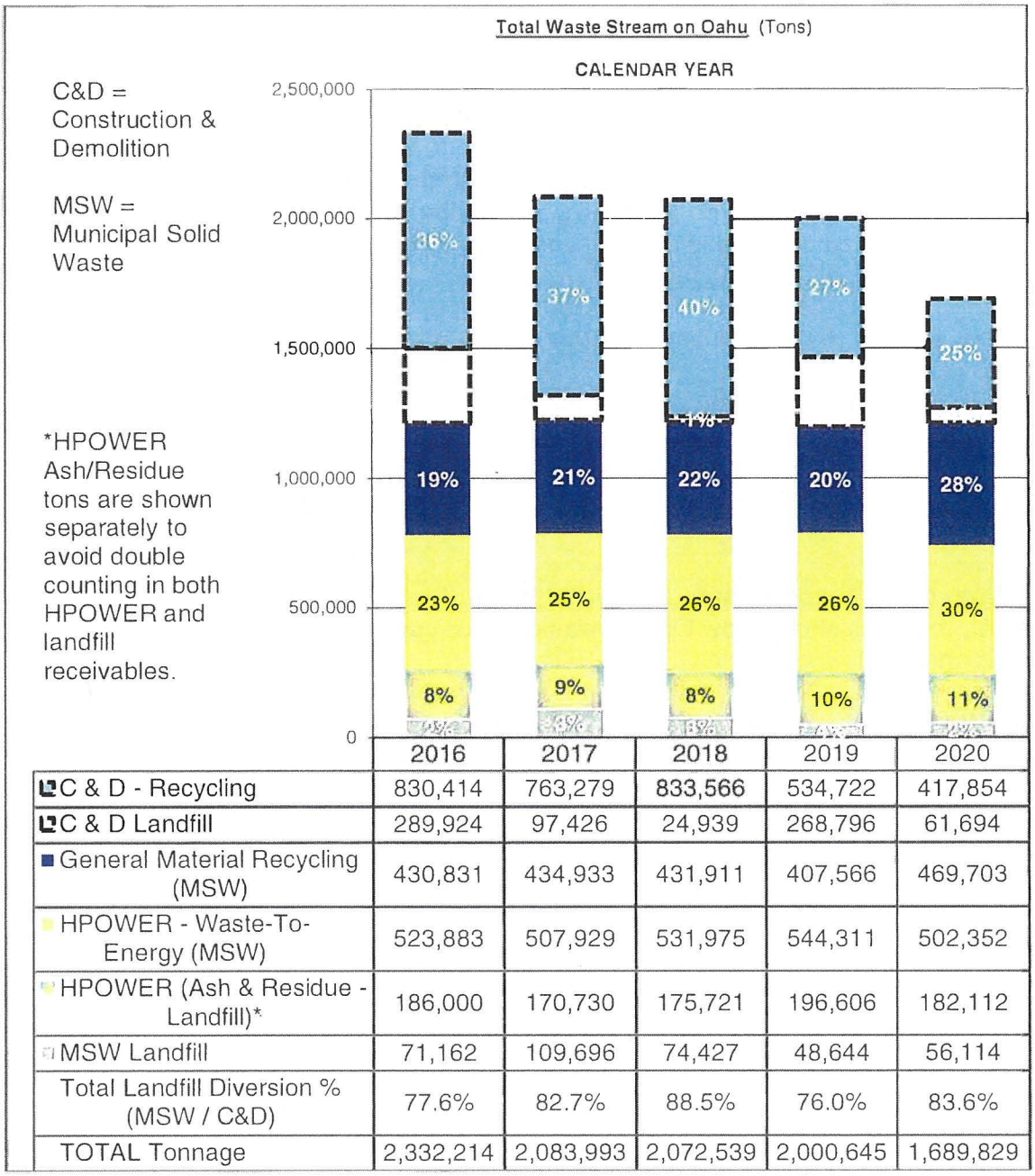
The island's waste data is presented in two charts:

1. TOTAL WASTE which includes Municipal Solid Waste ("MSW") and Construction and Demolition ("C&D") material, processed through recycling, waste-to-energy or landfilling; and
2. MSW only, processed through recycling, waste-to-energy or landfilling.

Both charts present data for the most recent five (5) calendar years (2016-2020). Moreover, this data shows how Oahu's waste was diverted from WGSL through recycling and waste-to-energy.

TOTAL WASTE data is presented in the chart below. For 2020, rates for C&D material recycling and disposal decreased overall from the 2019, while recycling and waste-to--energy combined to divert nearly 76% of waste from landfills.

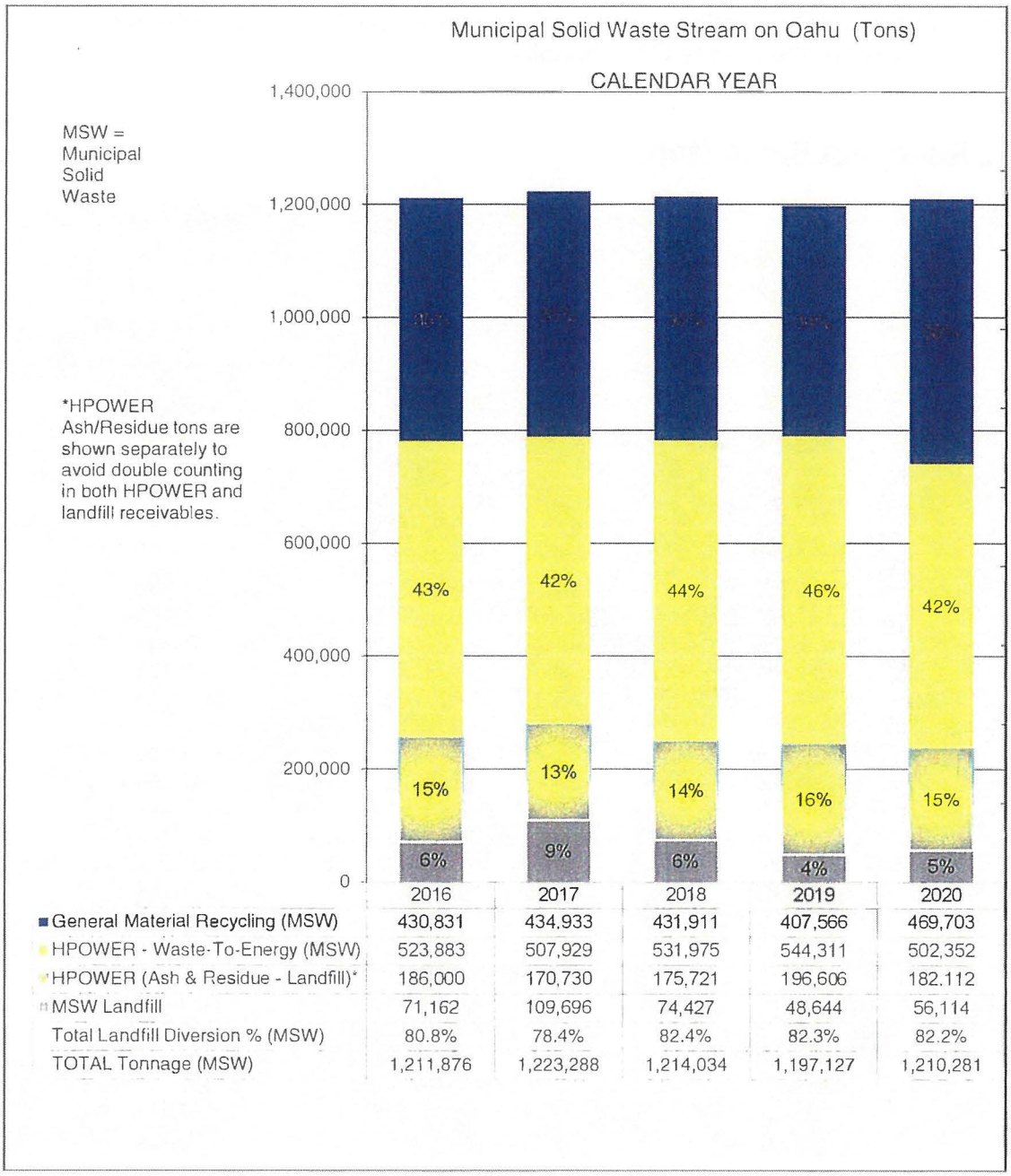
There are two landfills on Oahu: the City's WGSL, which is designated for MSW, and the privately-owned PVT Landfill, which is permitted for C&D waste only.



	2016	2017	2018	2019	2020
C & D - Recycling	830,414	763,279	833,566	534,722	417,854
C & D Landfill	289,924	97,426	24,939	268,796	61,694
General Material Recycling (MSW)	430,831	434,933	431,911	407,566	469,703
HPOWER - Waste-To-Energy (MSW)	523,883	507,929	531,975	544,311	502,352
HPOWER (Ash & Residue - Landfill)*	186,000	170,730	175,721	196,606	182,112
MSW Landfill	71,162	109,696	74,427	48,644	56,114
Total Landfill Diversion % (MSW / C&D)	77.6%	82.7%	88.5%	76.0%	83.6%
TOTAL Tonnage	2,332,214	2,083,993	2,072,539	2,000,645	1,689,829

MSW ONLY data is presented in the chart below. Robust recycling and waste-to-energy rates continue to contribute to the steady decline of MSW tonnage going to the WGSL. Considering MSW only and landfill diversion specific to the WGSL, the landfill diversion rate achieved through recycling and waste-to-energy is at 82.2%, and the general material recycling rate increased to 38%, an increase of 4% from 2019. Landfill diversion rates for the most recent five (5) years at WGSL are charted below, allowing for a better visual assessment of the data. Important to note that 5% of the approximate 20% of material landfilled at WGSL

in 2020, was MSW, with the rest consisting of ash and noncombustible residue from H-POWER.



	2016	2017	2018	2019	2020
General Material Recycling (MSW)	430,831	434,933	431,911	407,566	469,703
HPOWER - Waste-To-Energy (MSW)	523,883	507,929	531,975	544,311	502,352
HPOWER (Ash & Residue - Landfill)	186,000	170,730	175,721	196,606	182,112
MSW Landfill	71,162	109,696	74,427	48,644	56,114
Total Landfill Diversion % (MSW)	80.8%	78.4%	82.4%	82.3%	82.2%
TOTAL Tonnage (MSW)	1,211,876	1,223,288	1,214,034	1,197,127	1,210,281

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 470,000 tons in 2020. Recycling of C&D materials, such as concrete, rock and asphalt, contributed an additional 417,854 tons to the recycling rates, for a total of

almost 900,000 tons recycled for 2020. 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 since 2015 due to ongoing major projects. In 2020, there was a significant drop in C&D Recycling due to a decrease in construction and the stored recyclable material at the private C&D landfill.

Yearly Recycling Rates (tons)

Year	General Material Recycling	C&D Recycling	Total Recycled
2020	469,703	417,854	887,557
2019	407,566	534,722	942,288
2018	431,911	868,617	1,300,528
2017	434,933	763,279	1,198,212
2016	430,831	830,414	1,261,245
2015	449,153	731,865	1,181,018
2014	475,953	401,335	877,286
2013	477,011	257,287	734,298
2012	487,159	179,906	667,065
2011	490,061	181,087	671,148
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

Oahu Recycling 2020	
Material Type	**Amount in tons**
PAPER	
Corrugated Cardboard	41,812
Newspaper	8,574
Office Paper	5,213
Other Paper	1,060
METALS	
Ferrous (includes autos)	139,366
Non-Ferrous (includes aluminum)	10,855
GLASS	10,947
PLASTIC	4,799
TIRES	7,783
AUTO BATTERIES	9,193
ELECTRONIC SCRAP	1,000
GREEN WASTE (yard trimmings)	169,933
WOOD WASTE/PALLETS	8,715
CONSTRUCTION & DEMOLITION (rock, concrete, asphalt)	417,854
FOOD WASTE	38,361
OTHER REUSE (Goodwill, Salvation Army)	11,821
TOTAL	887,557

The City's efforts to increase residential recycling rates have continued with its ongoing efforts to educate residents about the value and benefits of its three-cart curbside program, and the continued promotion and rejuvenation of its condominium recycling assistance program. Additionally, the City requires commercial sector recycling through mandatory laws established by City ordinance, and provides assistance to businesses to setup and expand their recycling programs.

a. Curbside Recycling – Curbside recycling participation remains strong and material recovery rates are increasing every year. ENV completed the final phase expansion of the fully-automated 3-cart curbside recycling program May 2010. There are currently 170,000 homes participating in the program, capturing material at a rate of 23,000 tons of mixed recyclables and 75,000 tons of green waste per year. Increased public experience with identifying and sorting recyclables is producing higher results for the City's curbside recycling program. The program continues to be evaluated to identify strategies for improving participation, efficiencies and to decrease contamination.

   Ordinance 22-10 adds food waste to the City's island-wide curbside collection. ENV is in the planning phase to pilot different food waste collection methods and plans to implement a curbside collection of food waste by January 1, 2024.

b. Multi-Material Recycling Centers – Recycling is available to those without curbside collection service. There are two City recycling drop-off locations in Haleiwa, one fronting its Waialua Base Yard (Emerson Rd.) and the other at its Kawailoa Transfer Station. Both locations feature several 96-gallon blue carts, complete with instructional signage and stickers for the community to use. All blue cart recyclables are acceptable, including plastics (1 & 2), glass bottles and

jars, metal cans, newspaper, paper bags, corrugated cardboard and white and colored office paper.

c. Condominium Recycling – The City continues to promote condominium recycling through a program reimbursing 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 electronic 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. In 2015, the law was amended to require electronic device manufacturers to establish drop-off locations for e-waste and prohibited mail-back only recycling options for some devices. ENV continues 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 policy established in the mid 1990's, which requires office buildings to recycle office paper, bars/restaurants to recycle glass and a variety of food operations to recycle food waste. It is no longer mandatory for Advance Disposal Fee ("ADF") glass to be sorted by the liquor establishments but the recyclers still receive ADF glass through their commercial accounts. The City suspended the ADF portion of the glass relating to the glass ordinance but the City still receives the State Subsidy for ADF glass the recyclers are collecting. State legislation is needed to increase the fee to lift the suspension on the ADF glass. Disposal site bans/restrictions divert materials from WGSL and H-POWER, including green waste, cardboard, metals, tires, auto batteries, and e-waste. The City is encouraging businesses to generate less food waste and to support food security programs. 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. Public education – Public education regarding recycling is ongoing and includes the distribution of brochures and print materials, dissemination of information via City's new refuse website, www.honolulu.gov/opala, WasteLine e-newsletter and virtual presentations. There has been an increase in social media participation to assist with the public education program. Source reduction will be another component to add to our public education program. Opala.org will have a redirect to the new website for the next two (2) years. The transition period to phase out the old website will be approximately 2 years.

Composting workshops – Composting workshops presented by City staff were reinstated as part of the City's public education program. The workshop teaches residents to manage green waste at home by utilizing the green cart for large items such as branches and to aerobically compost the grass trimmings, leaves and small diameter branches. The City is also gathering information to provide food waste composting through the use of worms called vermiculture and beneficial microbes with the Bokashi method. Due to the pandemic, composting workshops are through a virtual format.

Recycling education in the schools – Recycling education shows presented by the Honolulu Theatre for Youth ("HTY") combined with classroom activity books educate our youth to become expert recyclers and encourage them to support their family to properly sort their waste at home. Every year, the program reaches approximately 20,000 students and teachers. The 12th season included a feature on HTY's HI-Way program aired through the television media with a focus on food waste reduction and the introduction of Fats, Oil and Grease. This program features environmental issues including solid waste management and concluded in late February 2022

FUNDING ARRANGEMENTS

Funding arrangements for the landfill and alternate technologies have been requested and approved for the Fiscal Year 2022 (Ordinance 21-21) and 2023 (Ordinance 22-14) Capital Improvements (CIP) Budgets. Copies of the CIP budget bills and ordinances are available on the Honolulu City Council website www.honolulu.gov/council, follow the link to Council Bills, Resolutions, and Communications.

CONCLUSION

The foregoing report is submitted in accordance with reporting requirements set forth in the LUC Order dated November 1, 2019. 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 17 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 WGSL.

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.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
TELEPHONE (808) 768-3486 • FAX: (808) 768-3487 • WEBSITE: http://envhonolulu.org

RICK BLANGIARDI
MAYOR

ROGER BABCOCK, JR., Ph.D., P.E.
DIRECTOR

MICHAEL O'KEEFE
DEPUTY DIRECTOR

IN REPLY REFER TO:
RH 24-001

July 7, 2023

RETURN RECEIPT REQUESTED
7018 0680 0001 2352 1725

Mr. Dan Giovanni, Chair
Land Use Commission
Department of Business, Economic Development & Tourism
State of Hawaii
235 South Beretania Street, Room 406
Honolulu, Hawaii 96813

RETURN RECEIPT REQUESTED
7018 0680 0001 2352 1732

Mr. Pane Meatoga III, Chair
Planning Commission
c/o Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Messrs. Giovanni and Meatoga III:

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

In accordance with the November 1, 2019 State Land Use Commission Order Approving with Modifications the City and County of Honolulu Planning Commission's Recommendation to Approve Special Use Permit, the attached Seventh Semi-Annual Report is submitted for your information. This report covers the period from November 1, 2022 through April 30, 2023, unless otherwise stated in the report.

The report is being concurrently submitted to the Planning Commission and Land Use Commission.

Sincerely,

Roger Babcock Jr., Ph.D., P.E.
Director

Attachment

cc: Jeffrey Hu - COR

EXHIBIT "A13"

SEVENTH SEMI-ANNUAL REPORT

STATUS OF ACTIONS TAKEN TO COMPLY WITH THE STATE LAND USE COMMISSION'S ORDER DATED NOVEMBER 1, 2019
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

July, 2023

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PREFACE

This report was prepared in accordance with the State of Hawaii Land Use Commission's ("LUC") Order Approving With Modifications the City and County of Honolulu Planning Commission's Recommendations to Approve a Special Use Permit, dated November 1, 2019 ("LUC Order"). A copy of the LUC Order is available on the LUC's website.

Under Condition No. 7 of the LUC Order, the Applicant (Department of Environmental Services, City and County of Honolulu, hereinafter "ENV") shall provide semi-annual reports to the Planning Commission of the City and County of Honolulu ("Planning Commission") and the LUC regarding the following:

a) The status of the efforts to identify and develop a new landfill site on Oahu,

b) The Waimanalo Gulch Sanitary Landfill's ("WGSL") operations, including gas monitoring,

c) ENV's compliance with the conditions imposed herein,

d) The WGSL's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the WGSL,

e) The City's efforts to use alternative technologies,

f) The extent to which waste is being diverted from the WGSL and

g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the WGSL.

This is the seventh semi-annual report submitted in accordance with Condition No. 7 and covers the period from November 1, 2022 through April 30, 2023, or as otherwise stated.

STATUS OF IDENTIFYING AND DEVELOPING NEW LANDFILL SITES ON OAHU

1. General

Condition No. 5 of the LUC Order requires that, by no later than December 31, 2022, ENV shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, ENV shall provide written notice to the Planning Commission and the LUC.

2. Current Status

The City has been engaged in an ongoing effort to identify a landfill site. Condition 4 of the prior LUC Order in Docket No. SP09-403, which was certified on October 22, 2009 ("2009 LUC Order"), stated:

"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."

In accordance with Condition 4 of the 2009 LUC Order, Mayor's Advisory Committee on Landfill Site Selection ("MACLSS") met in 2011 and 2012, and completed its final report on September 25, 2012. All committee meetings were open to the public and to public comment. In the final report, 11 potential sites were identified and ranked based on community criteria. Handouts provided to the MACLSS, the Group Memory of each meeting, and the final report are posted online at www.honolulu.gov/opala.

The City retained a consultant to further review and analyze the sites based on technical and engineering considerations. The report, "Assessment of Municipal Solid Waste Handling Requirements for the Island of Oahu", was completed in November 2017 and is available online at www.honolulu.gov/opala.

The passage of Act 73 (2020) prohibits the construction, modification, or expansion of waste disposal facilities without first establishing a buffer zone of no less than one-half mile around the waste or disposal facility. Although not required, the active area of WGSL is in compliance with this requirement.

An initial review of the available sites in Fall 2020 reduced the number of potential future landfill sites to four (Keaau, Upland Kahuku 1 and Upland Pupukea 1 and 2) based on sites short-listed in the 2017 landfill siting report. However, additional review in January 2021 determined that a more thorough review and evaluation of new locations island-wide with respect to Act 73 is warranted.

On April 27, 2021, ENV presented an update on integrated solid waste management and progress towards a future landfill site at a joint City Council committee

meeting. ENV shared a preliminary map showing areas compliant with Act 73 where a landfill could potentially be located. The consultant further refined the areas with respect to Act 73 and other constraints.

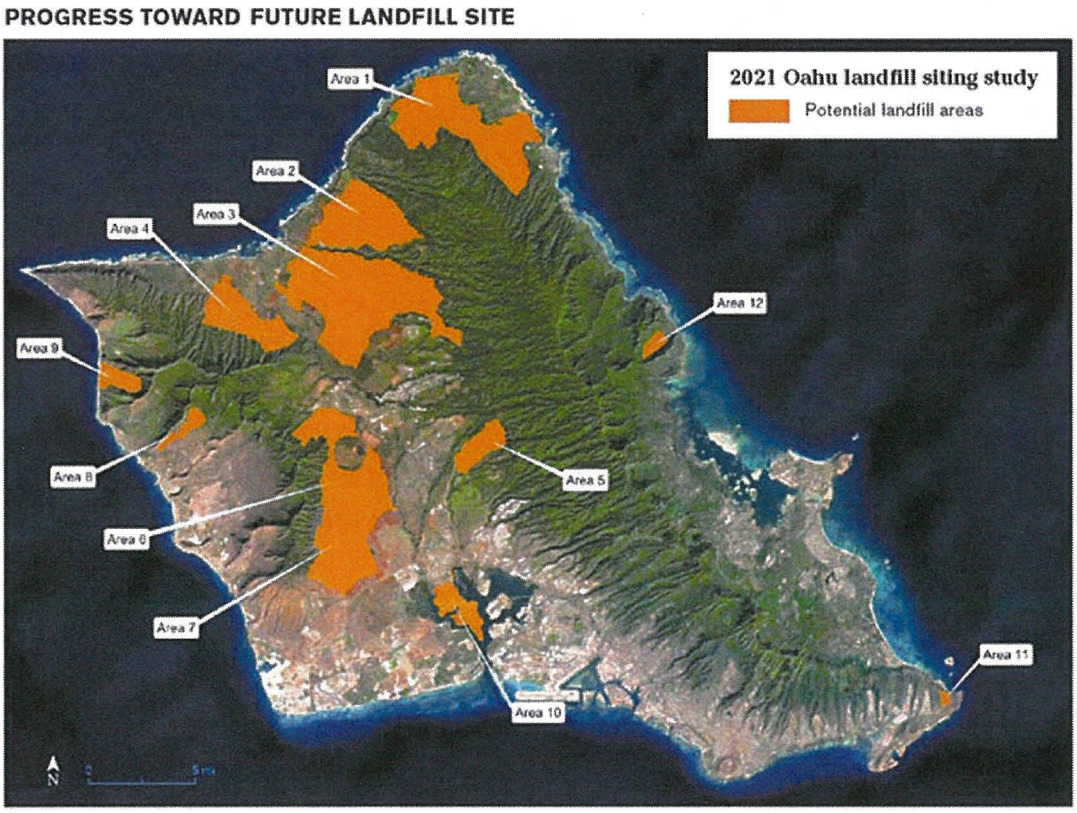
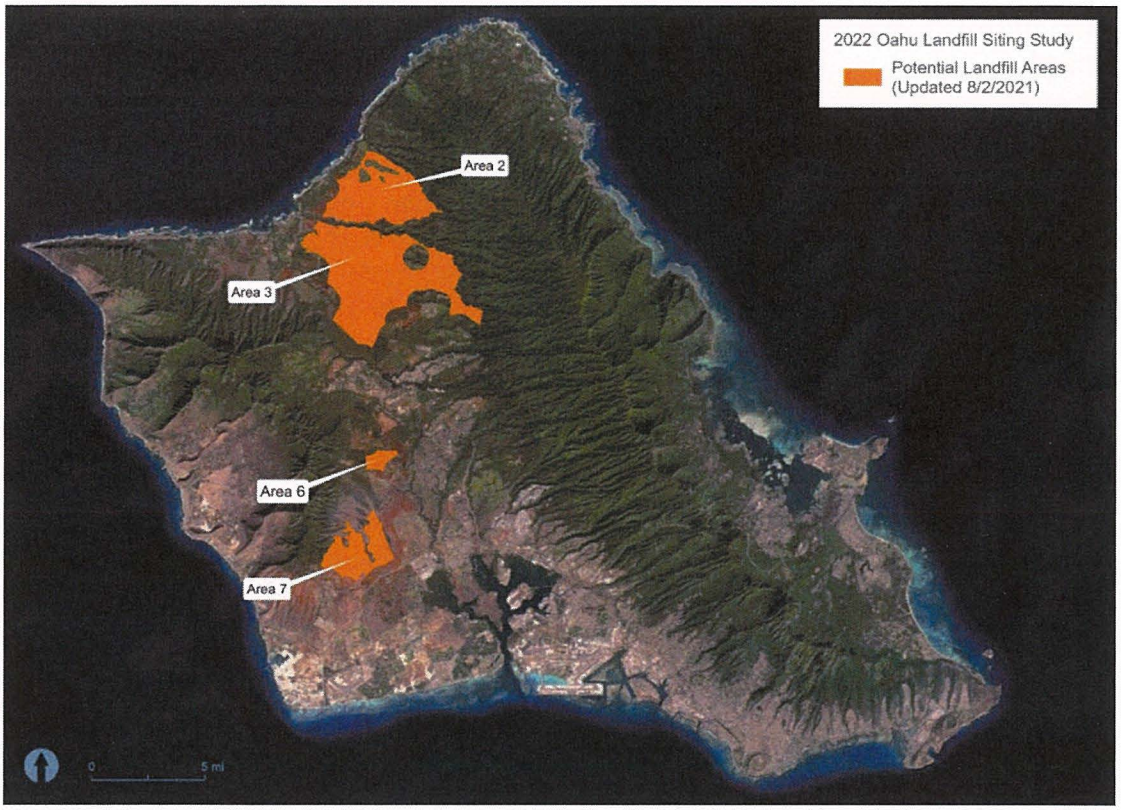


Figure 1Map of Oahu with 12 areas in orange where a possible landfill could be built.

On August 26, 2021, ENV presented a landfill siting update to joint City Council committee. ENV shared a further refined map of areas where a landfill could potentially be located.

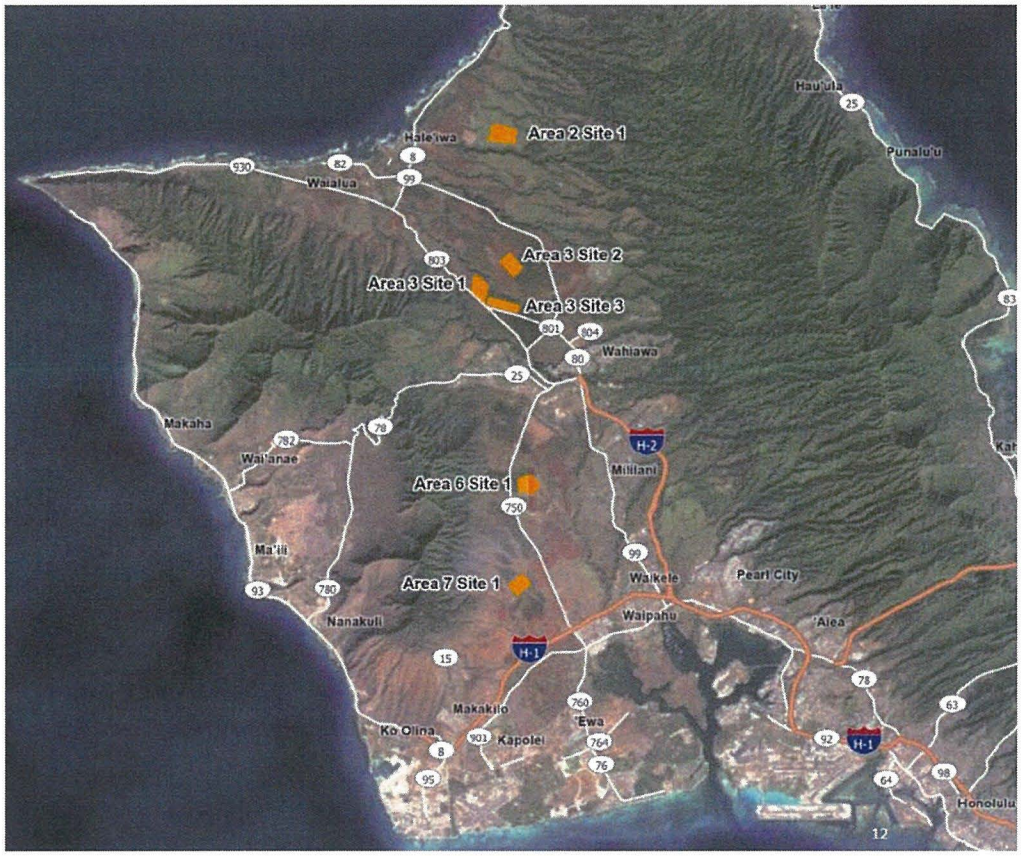


On August 27, 2021, ENV launched a new landfill siting website containing an interactive map tool, resident survey and questions and answers.

On September 24, 2021, Mayor Rick Blangiardi appointed nine members to the Landfill Advisory Committee ("LAC"), which was established in accordance with Section

4-103 of the Revised Charter of the City and County of Honolulu 1973 (2017 edition), as revised.

The LAC's inaugural meeting was held on October 4, 2021. A total of eight meetings were conducted with the last meeting held on June 6, 2022. The LAC evaluated and scored six proposed landfill sites shown below. The scores were used to produce the site ranking, but the committee recommended that none of the sites are suitable due to their proximity to the drinking water aquifer (i.e., in the Board of Water Supply's "No Pass Zone"). The LAC report has been finalized. To learn more about the LAC or view the report, the public should visit ENV's landfill page on the website.



On October 24, 2022, ENV briefed the board members of the Honolulu Board of Water Supply ("BWS") about the status of the landfill site selection, the urgency of the City's need to identify an alternative landfill site by December 31, 2022, and the LAC's reservations relating to the six proposed sites because of their location in the BWS No Pass Zone. ENV sought clarity on BWS' legal authority over landfill siting in the No Pass Zone; asked whether that authority was exercised; and if not exercised, when the City should seek such a determination from the BWS. The BWS Board did not provide a response to ENV's inquiry at the informational briefing.

On November 3, 2022, ENV sent a follow-up letter to the BWS to ask for its official response or position. On November 16, 2022, the BWS responded to ENV via

letter, stating that it does not approve any of the six proposed landfill sites because they are all located in the BWS No Pass Zone.

On December 23, 2022, ENV filed with the Department of Planning and Permitting, City and County of Honolulu ("DPP"), an application to modify State Special Use Permit File No. 2008/SUP-2 (SP09-403), specifically to modify the conditions that set a December 31, 2022 deadline to identify an alternative landfill site. ENV's application can be found at the State LUC website.

That same day, the Mayor and ENV held a press conference announcing ENV's application and plan to pursue the LAC's recommendations to explore the use of federal lands outside the BWS No Pass Zone and work with the state legislature on a new law or amendments to existing law that would open up potential sites outside the No Pass Zone.

On March 31, 2023, DPP accepted ENV's application for processing. DPP accepted public comments through April 28, 2023. A public hearing is scheduled for June 28, 2023. More information can be found at DPPs website.

ENV has begun discussions with U.S. military officials regarding the City's potential interest in using federal military-owned land for a City landfill. ENV intends to assess the military's willingness to partner on this issue as soon as possible so that ENV can focus its efforts accordingly. At the same time, ENV is also researching non-military areas outside of the BWS' No Pass Zone that are wholly or partially restricted under state law (Act 73) in anticipation of pursuing changes to state law that would permit the use of certain areas for landfill purposes. If state law is changed and a potential landfill site becomes available, ENV may need to pursue eminent domain or a related action to acquire a candidate site.

ENV is continuing to periodically update the City Council and Neighborhood Boards.

3. District Boundary Amendment

In 2020, ENV began preparing an application for a District Boundary Amendment (DBA) to change the zoning of the WGSL site from Agricultural to Urban. ENV also began the environmental review process for the DBA. The EIS and DBA application are not being pursued at this time pending further development of landfill siting activities.

STATUS OF LANDFILL OPERATIONS

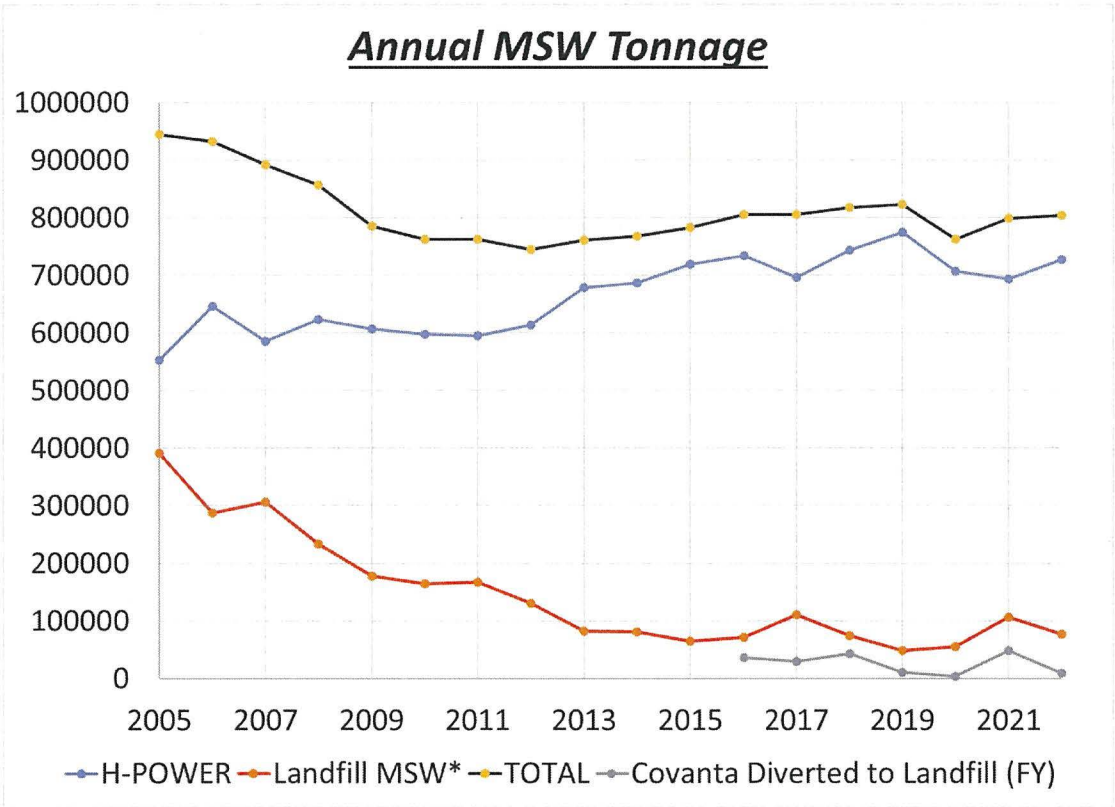
1. Tonnage

Over the period beginning November 1, 2022 through April 30, 2023, the WGSL received the following amounts of material:

H-POWER Ash.....	67,406.14 tons
H-POWER Residue.....	45.57 tons
Municipal Solid Waste (MSW).....	58,833.38 tons

During the reporting period, H-POWER combusted its process residue as part of a trial project. This project is discussed in the Source Reduction, Alternative Technologies and Landfill Diversion section of this report.

The following graph illustrates the reduction of MSW delivered to WGSL (red line) generally as a result of source reduction and diverting more waste from the landfill to H-POWER (blue line). The total MSW (black line) reflects the MSW reduction during the Great Recession that began in 2008, a slow but steady economic recovery and another MSW reduction during the COVID-19 pandemic that began in 2019. Slightly higher landfill tonnages in 2017 and 2021 were due to facility refurbishment projects and major turbine-generator maintenance.



Future planned improvement projects including infeed improvements and a second dump condenser are intended to further reduce the amount of MSW diverted to WGSL during H-POWER maintenance outages.

2. Remaining Capacity

As of March 30, 2022 (the date of the last aerial survey), WGSL has 4,331,945 cubic yards of airspace remaining. Using the average fill rates and airspace utilization between March 27, 2021 and March 30, 2022 (time between surveys), WGSL has approximately 15 years of combined MSW and ash life remaining or could reach capacity in late 2036. This estimate does not consider the impact from PVT Landfill's potential closure within the next eight years. In addition, this estimate does not consider advances in technology and additional landfill diversion, discussed further in this report, which could reduce the City's use of WGSL, thereby slowing the rate of landfilling and delaying the date upon which it will reach capacity. The March 2022 survey data was reported to DOH in the annual operating report dated July 28, 2022. The next aerial survey was conducted on April 13, 2023. The data is being compiled and the results will be reported to DOH in the next annual operating report due July 31, 2023.

3. Current Status of WGSL

Activities conducted during the reporting period include MSW landfilling in Cells E-5, E-6, E-7 and E-8 and ash landfilling in Cells E-8 and E-9.

4. Impact of Potential PVT Landfill Closure

PVT Landfill informed haulers that due to the passage of Act 73, PVT would no longer be an option for disposal of asbestos containing material ("ACM") after January 1, 2021. To provide an on-island option for ACM, WGSL began accepting ACM on January 6, 2021.

With PVT unable to proceed with their planned expansion, they are expecting to close within the next eight years according to an October 2022 interview with Spectrum News. The City is gathering information to draft legislation for C&D waste recycling. The City is also working with Covanta to apply for permit modifications for H-POWER to be able to accept the wood or combustible fraction. In addition, Chapter 42 of the Revised Ordinances of Honolulu should be amended to include fees that reflect the actual cost of disposal and special handling required for asbestos and other special wastes.

5. Gas Monitoring

The gas collection and recovery system at WGSL continues to expand to accommodate landfilling operations while maintaining compliance. New air compliance regulations went into effect September 2021, which require additional monitoring around gas wells and surface emissions monitoring. The landfill is maintaining compliance with the new regulations.

COMPLIANCE WITH CONDITIONS OF ORDER

The LUC approved with modifications the Planning Commission's recommendations to approve a special use permit for WGSL and approved with modifications ENV's applications, subject to 17 conditions. The general description and status of each condition is as follows:

Condition No.	Description
1	**The WGSL shall close by no later than March 2, 2028. The WGSL shall not accept any form of waste after March 2, 2028.** Status: So noted.
2	**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.** Status: All applicable permits/approvals have been obtained.
3	**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.** Status: Dust control measures and management plan have been provided for as part of the Solid Waste Management Permit issued by the DOH.

Condition No.	Description
4	**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.** Status: So noted.
5	**By no later than December 31, 2022, the Applicant shall identify an alternative landfill site that may be used upon closure of WGSL. Upon identification of the alternative landfill site, the Applicant shall provide written notice to the Planning Commission and the LUC.** Status: See section on Status of Identifying and Developing New Landfill Sites on Oahu in this report.
6	**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.** Status: See section on Alternative Technologies in this report.
7	**The Applicant shall provide semi-annual reports to the Planning Commission and the LUC regarding the following: a) The status of the efforts to identify and develop a new landfill site on Oahu, b) The WGSL's operations, including gas monitoring, c) The Applicant's compliance with the conditions imposed herein, d) The Landfill's compliance with its Solid Waste Management Permit issued by the Department of Health and all applicable federal and state statutes, rules and regulations, including any notice of violation and enforcement actions regarding the landfill, e) The City's efforts to use alternative technologies, f) The extent to which waste is being diverted from the landfill and g) Any funding arrangements that are being considered by the Honolulu City Council or the City Administration for activities that would further divert waste from the landfill.** Status: Each year reports will be submitted to cover the six-month periods of November through April, and May through October.

Condition No.	Description
8	**Closure Sequence "A" for the existing landfill cells at WGSL as shown on Exhibit "A12" must be completed, and final cover applied, by December 31, 2012.** Status: Closure Sequence "A" was commenced in June 2012 and the final cover was applied and substantially completed in December 2012.
9	**WGSL 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.** Status: 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. with the exception of H-POWER ash, which can be received 24 hours a day. Permission to extend hours to accommodate refuse loads during H-POWER outages shall be obtained from DOH on an as-needed basis.
10	**The Applicant shall coordinate construction of the landfill cells in the expansion area and operation of WGSL 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.** Status: Coordination with HECO will be done to ensure that landfill construction and operations are adequately separated from overhead electrical power lines.
11	**The operations of the WGSL 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.** Status: Revised Ordinances of Honolulu § 21-5.680 is inapplicable to the WGSL as that Property is a public use and said ordinance therefore does not impact operations at WGSL. The operations of the WGSL are in compliance with any and all applicable rules and regulations of the DOH.
12	**The Planning Commission may at any time impose additional conditions when it becomes apparent that a modification is necessary and appropriate.** Status: So noted.

Condition No.	Description
13	**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.** Status: So noted.
14	**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).** Status: Respective notifications will be made prior to termination of the use of the property as a landfill.
15	**The Applicant 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 being considered by the City Council and the City Administration.** Status: See Condition No. 16 Status.
16	**The Applicant shall have a public hearing every three months in either Waianae, Maili, or Nanakuli to report on the status of their efforts to either reduce or continue the use of the WGSL.** Status: In accordance with the LUC Order dated November 1, 2019, ENV identified a site in Nanakuli for the public hearings it holds every 3 months to report on the status of efforts to either reduce or continue the use of the WGSL and the efforts of the City Council and City Administration in regard to the continued use of the WGSL, including any funding arrangements being considered by the City Council and the City Administration. ENV publishes public notice of the public hearings in the newspaper and posts notice on www.honolulu.gov/opala. Summaries of the hearings are posted online at www.honolulu.gov/opala.

Condition No.	Description
	During the reporting period, two public hearings were held at the Kalanianaole Beach Park in Nanakuli on January 24, 2023 and April 18, 2023. A total of three members of the public attended the hearings.
17	**If the landfill releases waste or leachate, the Applicant must immediately a) notify the surrounding community, including the Makakilo/Kapolei/Honokai Hale, Waianae Coast and Nanakuli-Maili Neighborhood Boards, Intervenors Schnitzer Steel Hawaii Corp., Ko Olina Community Association, Maile Shimabukuro and Colleen Hanabusa and b) take remedial actions to clean up the waste and to keep the waste from spreading. Such remedial actions shall include, but shall not be limited to, placing debris barriers and booms at the landfill's shoreline outfall to prevent waste from spreading into the ocean.** Status: So noted.

REGULATORY COMPLIANCE

1. Solid Waste Permit

The solid waste permit for the lateral expansion was approved by the 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), WGSL legally continued operations under the conditions of the previous permit and the operations plans submitted to DOH. The renewal permit was issued on March 3, 2023 and expires on March 2, 2028. New cell construction and drainage improvements are complete.

2. Consent Decree

In 2019, the City and Waste Management of Hawaii ("WMH"), the WGSL operator, reached a settlement with the U.S. Environmental Protection Agency ("EPA") and DOH over alleged violations of the Clean Water Act and State law. The alleged violations arose primarily from storm events that occurred in the winter of 2010-2011, during construction of the WGSL's western diversion drainage system. The EPA and DOH alleged that following the large rain storms the City and WMH violated the Clean Water Act by discharging pollutants without National Pollutant Discharge Elimination System Permit authorization and by discharging pollutants in storm water in violation of the terms of the Notice of General Permit Coverage for Industrial Stormwater issued to the City.

On July 3, 2019, the U.S. District Court for the District of Hawaii entered the consent decree in United States of America and State of Hawaii Department of Health v. Waste Management of Hawaii, Inc. and City and County of Honolulu, Case No. 1:19-cv-00224.

In accordance with the consent decree, the City paid a civil penalty of $62,500 to the United States and $62,500 in lieu of a civil penalty to the state Department of Land and Natural Resources Division of Aquatic Resources. Similarly, WMH paid $150,000 to each entity.

Also, in accordance with the consent decree, the City and WMH implemented enhancements to WGSL's western diversion drainage system, revised the facility's stormwater pollution control plan, and applied for an individual stormwater permit for WGSL. The permit was issued on April 1, 2023, and expires on March 31, 2028.

With the requirements of the consent decree having been completed, the parties are in the process of finalizing a joint stipulation and request for order terminating the consent decree.

SOURCE REDUCTION, ALTERNATIVE TECHNOLOGIES AND LANDFILL DIVERSION

1. Source Reduction

Source reduction is the highest priority among the solid waste management practices and processing methods for the State. The City's source reduction efforts currently focus on providing public education to increase awareness of existing source reduction resources and encourage residents and businesses to prevent waste at the source.

a. Plastic Bag Ordinances – Since July 1, 2015, businesses are prohibited from providing plastic checkout bags and non-recyclable paper bags to their customers at the point of sale. Per Ordinance 12-8, amended by Ordinance 14-29, ENV is responsible for implementing and enforcing the ban. All information pertaining to the ban is posted online on www.honolulu.gov/opala. Businesses are required to submit annual compliance information to verify their compliance with the ban. The ban was amended by Ordinance 17-37 to require businesses to charge a minimum of 15 cents for each reusable, recyclable paper or compostable bag provided to customers at the point of sale, effective July 1, 2018. Beginning January 1, 2020, compostable bags were banned, and plastic film bags were no longer considered to be reusable bags. The ban was further amended by Ordinance 19-30 by changing the definition of "plastic" and amending the definitions for "plastic checkout bag" and "plastic film bag" as well as revising the exemptions list, effective April 1, 2020.

b. Disposable Food Ware Ordinance – The intent of Ordinance 19-30, commonly referred to as the Disposable Food Ware Ordinance ("DFWO"), is to protect human safety and welfare, and to improve environmental quality on the island, in the neighboring marine environment, and globally. The DFWO affects all food vendors and businesses operating within the City by amending the Oahu Plastic Bag Ban and restricting the use and sale of polystyrene foam food ware, disposable plastic food ware and disposable plastic service ware. The DFWO also prescribes when disposable service ware may be provided. Inspections for compliance with Ordinance 19-30 began in June 2021. On June 25, 2021, the City suspended the restrictions on disposable plastic service ware and polystyrene foam food ware contained in Section 41-27.2(b) and (d), Revised Ordinances of Honolulu, in an effort to promote and protect the public health, safety, and welfare of the residents of the City, and to provide relief from the economic impact directly and indirectly caused by COVID-19. Subsequently on December 10, 2021, Sections 41-27.2(a) and (c) and Section 41-27.4 were suspended to alleviate the economic hardship and inequity caused by the COVID-19 emergency and emergency actions that were taken to implement public health best practices, and the supply chain challenges caused by global shipping delays. The suspension of

Sections 41-27.2 and 41-27.4 continued through March 5, 2022. On March 3, 2022, ENV granted an exemption request by Chamber of Commerce Hawaii, Hawaii Restaurant Association, Retail Merchants of Hawaii, and Hawaii Food Industry Association, for the use of disposable plastic food ware. The exemption ended on September 5, 2022.

c. Source Reduction Working Group (SRWG) - In accordance with the Integrated Solid Waste Management Plan, ENV will convene a Source Reduction Working Group (SRWG) to determine the topics of interest related to source reduction and the initiatives that can be pursued by the City and other groups to encourage source reduction. ENV has a contractor on board for facilitation of the group and is formulating the plan for the group. The inaugural meeting has been scheduled for April 19, 2023, at 1:00 PM at Kapolei Hale Conference Room A. ENV will be reaching out to nonprofit groups and other potentially interested parties to determine interest in participation. Extended producer responsibility (EPR) and packaging will be major focus points. ENV will provide updates on the SRWG in future public hearings and reports.

2. 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 30 years and has disposed of about 20,000,000 tons of municipal solid waste, generating in excess of $20,000,000 annual net revenues from the sale of electricity, recovered metals and tipping fees, and avoided the importation of about 20,000,000 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 April 2, 2013. It enables the facility to process and burn bulky waste that previously had to be disposed at WGSL. With the addition of the third boiler, and other efforts to divert waste from WGSL, H-POWER now plays an even larger role in reducing waste disposal at WGSL.

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 the wastewater treatment plants. The 20,000 tons per year of sludge currently produced by these plants is now being diverted from WGSL to H-POWER. In addition, a corresponding amount of bulky waste, which was required to bulk the sludge at WGSL, 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 is not accepted at H-POWER and will continue to be disposed of at WGSL.

c. Tires - H-POWER's solid waste management permit issued by DOH allows acceptance of used auto tires collected by the City, including refuse collection, convenience centers and illegal dumping up to 400 tires per day or 65,000 tires per year.

d. In-Feed Waste Processing Improvements- On March 17, 2023, ENV issued NTP to Covanta for the 18-month design phase (through October 31, 2024) of the RDF waste processing facility (WPF) in-feed improvements. The project will provide the RDF facility the ability to process bulky items and detect unacceptable items such as compressed gas cylinders.

e. Bulk Loads of Food Waste- Since March 1, 2017, bulk loads of commercially-generated spoiled food have been diverted from WGSL. ENV is evaluating technologies for the digestion of food waste.

3. Process Residue, Ash and Auto Shredder Residue

In July 2021, H-POWER began combusting its process residue on a trial basis. Operating data is being collected to determine whether to make the change permanent. This change has reduced the amount of process residue being disposed at the landfill from about 4000 tons per month to zero.

A contract for the processing and beneficial reuse of ash has been executed with Covanta Projects LLC. On June 1, 2022, ENV issued the Notice to Proceed for Phase I of the project. Phase I includes planning, permitting and 30% design. This project, when permitted and built, has the potential to divert at least 60% of the H-POWER ash that is currently disposed at WGSL.

Approximately 30,000 tons per year of ASR is disposed at WGSL. Although ASR was envisioned to be diverted to H-POWER, evaluation of ASR test data has concluded that the high Fluorine and Chlorine content of the material can be extremely harmful to the boiler. The matter is pending further evaluation and possible testing. The ash project may consider ASR processing as a potential future option.

4. Emerging Waste Conversion Technologies (EWCTs)

EWCTs such as plasma arc, gasification, thermal depolymerization and pyrolysis are mostly used overseas (i.e. Japan) for hazardous waste (very high tip fee), auto shredder fluff, ash, or other homogenous wastes. They have not worked well on mixed

waste (trash) and has only been applied as research, demo, military or ship-bound or pilot scale projects in the last 15-20 years.

Based on publications and information received from professional associations that ENV partners with such as the Solid Waste Association of North America (SWANA) and from consultants such as HDR Engineering Inc., there are currently no operating commercial-scale EWCT facilities in North America. Any such facilities in North America that were operating in the past are no longer operating. For example, the Ottawa, Canada and St. Lucie County, Florida plasma arc gasification projects both failed to proceed past the planning, financing and permitting stage and are not active. The councilors and other political leaders in those cities suffered much embarrassment and blowback for pursuing such a risky and unproven technology for managing their trash.

EWCTs continues to face major obstacles including:

- inability to scale up to commercial-scale
- inability to obtain financing and regulatory permits
- excessively high cost

- excessively high amount of power purchased and imported from the utility
- high maintenance demands, lot of downtime and limited life

Until these challenges are resolved, EWCTs are not being considered by ENV.

5. Sludge Re-use

Further processing and reuse of sludge avoids the need to landfill this waste stream. Laie Wastewater Treatment Plant ("WWTP") converts green waste mixed with sewage sludge into compost by using the windrow process. Sand Island WWTP processes sewage sludge into fertilizer pellets using the Synagro process. Since 2014, the average Synagro pellet reuse has been 93% (7% landfilled). Note that there are times, especially during 2016, when the farms experience heavy rains and are not able to accept the pellets.

6. Materials Recycling

To present a complete waste flow picture for Oahu, the most current data available is for calendar year 2021. Although waste to WGSL and H-POWER is tracked monthly by ENV, recycling data is provided by commercial recycling companies that are surveyed annually. Recycling data for 2021 was gathered and compiled during the second half of 2022; updated charts and analysis are posted below. Recycling data for 2021 is posted on the ENV website.

The island's waste data is presented in two charts:

1. TOTAL WASTE which includes Municipal Solid Waste ("MSW") and C&D material, processed through recycling, waste-to-energy or landfilling; and
2. MSW only, processed through recycling, waste-to-energy or landfilling.

Both charts present data for the most recent five (5) calendar years (2017-2021). Moreover, this data shows how Oahu's waste was diverted from WGSL through recycling and waste-to-energy.

TOTAL WASTE data is presented on the ENV website. For 2021, rates for C&D material recycling and disposal decreased overall from 2020, while recycling and waste-to-energy combined to divert nearly 73% of waste from landfills. There are two landfills on Oahu: the City's WGSL, which is designated for MSW, and the privately-owned PVT Landfill, which is permitted for C&D waste only.

MSW ONLY data is presented on the ENV website. Robust recycling and waste-to-energy rates continue to contribute to the steady decline of MSW tonnage going to the WGSL. Considering MSW only and landfill diversion specific to the WGSL, the landfill diversion rate achieved through recycling and waste-to-energy is at 80%, and the general material recycling rate decreased to 36%, an increase of 1% from 2017. Landfill diversion rates for the most recent five (5) years at WGSL are charted below, allowing for a better visual assessment of the data. Important to note that 9% of the approximate 20% of material landfilled at WGSL in 2021, was MSW, with the rest consisting of ash and noncombustible residue from H-POWER.

Recycling data: The recycling data tables 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 470,000 tons in 2020. Recycling of C&D materials, such as concrete, rock and asphalt, contributed an additional 417,854 tons to the recycling rates, for a total of almost 900,000 tons recycled for 2020. 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 since 2015 due to ongoing major projects. In 2020, there was a significant drop in C&D Recycling due to a decrease in construction and the stored recyclable material at the private C&D landfill.

The City's efforts to increase residential recycling rates have continued with its ongoing efforts to educate residents about the value and benefits of its three-cart curbside program, and the continued promotion and rejuvenation of its condominium recycling assistance program. Additionally, the City requires commercial sector recycling through mandatory laws established by City ordinance, and provides assistance to businesses to setup and expand their recycling programs.

a. Curbside Recycling – Curbside recycling participation remains strong and material recovery rates are increasing every year. ENV completed the final phase expansion of the fully-automated 3-cart curbside recycling program May 2010. There are currently 170,000 homes participating in the program, capturing material at a rate of 23,000 tons of mixed recyclables and 75,000 tons of green waste per year. Increased public experience with identifying and sorting recyclables is producing higher results for the City's curbside recycling program. The program continues to be evaluated to identify strategies for improving participation, efficiencies and to decrease contamination.

   Ordinance 22-10 adds food waste to the City's island-wide curbside collection. ENV is in the planning phase to pilot different food waste collection methods and plans to implement a curbside collection of food waste by January 1, 2024.

b. Multi-Material Recycling Centers – Recycling is available to those without curbside collection service. There are two City recycling drop-off locations in Haleiwa, one fronting its Waialua Base Yard (Emerson Rd.) and the other at its Kawailoa Transfer Station. Both locations feature several 96-gallon blue carts, complete with instructional signage and stickers for the community to use. All blue cart recyclables are acceptable, including plastics (1 & 2), glass bottles and jars, metal cans, newspaper, paper bags, corrugated cardboard and white and colored office paper.

c. Condominium Recycling – The City continues to promote condominium recycling through a program reimbursing 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 electronic 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. In 2015, the law was amended to require electronic device manufacturers to establish drop-off locations for e-waste and prohibited mail-back only recycling options for some devices. In 2022, the law was amended once again for manufacturers to establish a recycling plan that includes convenient collection at a minimum of once per month and zip code area with a population greater than 25,000. ENV continues 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 policy established in the mid 1990's, which requires office buildings to

recycle office paper, bars/restaurants to recycle glass and a variety of food operations to recycle food waste. It is no longer mandatory for Advance Disposal Fee ("ADF") glass to be sorted by the liquor establishments but the recyclers still receive ADF glass through their commercial accounts. The City suspended the ADF portion of the glass relating to the glass ordinance but the City still receives the State Subsidy for ADF glass the recyclers are collecting. State legislation is needed to increase the fee to lift the suspension on the ADF glass. Disposal site bans/restrictions divert materials from WGSL and H-POWER, including green waste, cardboard, metals, tires, auto batteries, and e-waste. The City is encouraging businesses to generate less food waste and to support food security programs. 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. Public education – Public education regarding recycling is ongoing and includes the distribution of brochures and print materials, dissemination of information via City's new refuse website, www.honolulu.gov/opala, WasteLine e-newsletter and virtual presentations. There has been an increase in social media participation to assist with the public education program. Source reduction will be another component to add to our public education program. Opala.org continues to have a redirect to honolulu.gov/opala. The transition period to phase out the old website will occur in 2024.

Composting workshops – Composting workshops presented by City staff were reinstated as part of the City's public education program. The workshop teaches residents to manage green waste at home by utilizing the green cart for large items such as branches and to aerobically compost the grass trimmings, leaves and small diameter branches. The City is also gathering information to provide food waste composting through the use of worms called vermiculture and beneficial microbes with the Bokashi method.

Recycling education in the schools – Recycling education shows presented by the Honolulu Theatre for Youth ("HTY") combined with classroom activity books educate our youth to become expert recyclers and encourage them to support their family to properly sort their waste at home. Every year, the program reaches approximately 20,000 students and teachers. The 13th season includes live performances at 30 schools featuring environmental issues including solid waste management and concludes in late February 2023.

FUNDING ARRANGEMENTS

Funding arrangements for the landfill and alternate technologies have been requested and approved for the Fiscal Year 2022 (Ordinance 21-21), 2023 (Ordinance 22-14), and 2024 (Ordinance 23-16) Capital Improvements (CIP) Budgets. Copies of the CIP budget bills and ordinances are available on the Honolulu City Council website, follow the link to Find Legislation (HNL DOCS).

CONCLUSION

The foregoing report is submitted in accordance with reporting requirements set forth in the LUC Order dated November 1, 2019. 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 17 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 WGSL.

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.

ACT 73

S.B. NO. 2386

A Bill for an Act Relating to Waste Management.

Be It Enacted by the Legislature of the State of Hawaii:

SECTION 1. Section 183C-4, Hawaii Revised Statutes, is amended by amending subsection (b) to read as follows:

"(b) The department shall adopt rules governing the use of land within the boundaries of the conservation district that are consistent with the conservation of necessary forest growth, the conservation and development of land and natural resources adequate for present and future needs, and the conservation and preservation of open space areas for public use and enjoyment[.]; provided that no waste or disposal facility shall be located in a conservation district except in emergency circumstances where it may be necessary to mitigate significant risks to public safety and health; provided further that emergency circumstances shall not exceed three years. No use except a nonconforming use as defined in section 183C-5, shall be made within the conservation district unless the use is in accordance with a zoning rule.

For the purposes of this subsection:

"Emergency" means any actual or imminent natural or human-caused occurrence that results or likely will result in substantial injury or harm to the population or substantial damage to or loss of property.

"Waste or disposal facility" means any transfer station or landfill as defined in section 340A-1, open dump as defined in section 342H-1, solid waste reduction facility or waste reduction facility as defined in section 342G-1, disposal facility, or any other facility for the disposal of solid waste that is required by law to obtain a permit from the department of health. "Waste or disposal facility" excludes individual, state certified, non-industrial redemption centers."

EXHIBIT "A14"

SECTION 2. Section 342H-52, Hawaii Revised Statutes, is amended to read as follows:

"**[~~[~~§342H-52[~~] Prohibition.~~]** **Prohibitions; buffer zones.** (a) No person, including [~~any federal agency,~~] the State[~~,~~] or any county, shall construct, operate, modify, expand, or close a municipal solid waste landfill unit, or any component of a municipal solid waste landfill unit, without first obtaining a permit from the director. All permits for municipal solid waste landfill units shall be subject to [~~such~~] any terms and conditions [~~as~~] that the director determines are necessary to protect human health or the environment.

(b) No person, including the State or any county, shall construct, modify, or expand a waste or disposal facility including a municipal solid waste landfill unit, any component of a municipal solid waste landfill unit, a construction and demolition landfill unit, or any component of a construction and demolition landfill unit without first establishing a buffer zone of no less than one-half mile around the waste or disposal facility. This subsection shall not apply to the continued operation of an existing waste or disposal facility that is properly permitted; provided that continued operation does not require physical expansion, vertical or horizontal, of the facility requiring additional permitting review and a permit modification.

For the purposes of this subsection:

"Buffer zone" means the distance between the edge of waste or waste activity and the nearest residential, school, or hospital property line.

"Waste or disposal facility" excludes individual, state certified, non-industrial redemption centers."

SECTION 3. Statutory material to be repealed is bracketed and stricken. New statutory material is underscored.

SECTION 4. This Act shall take effect upon its approval.

(Approved September 15, 2020.)

ACT 73 RESTRICTIONS

- ½ mile buffer from residential, school, and hospital property lines (blue)
- Conservation district subzones (green)

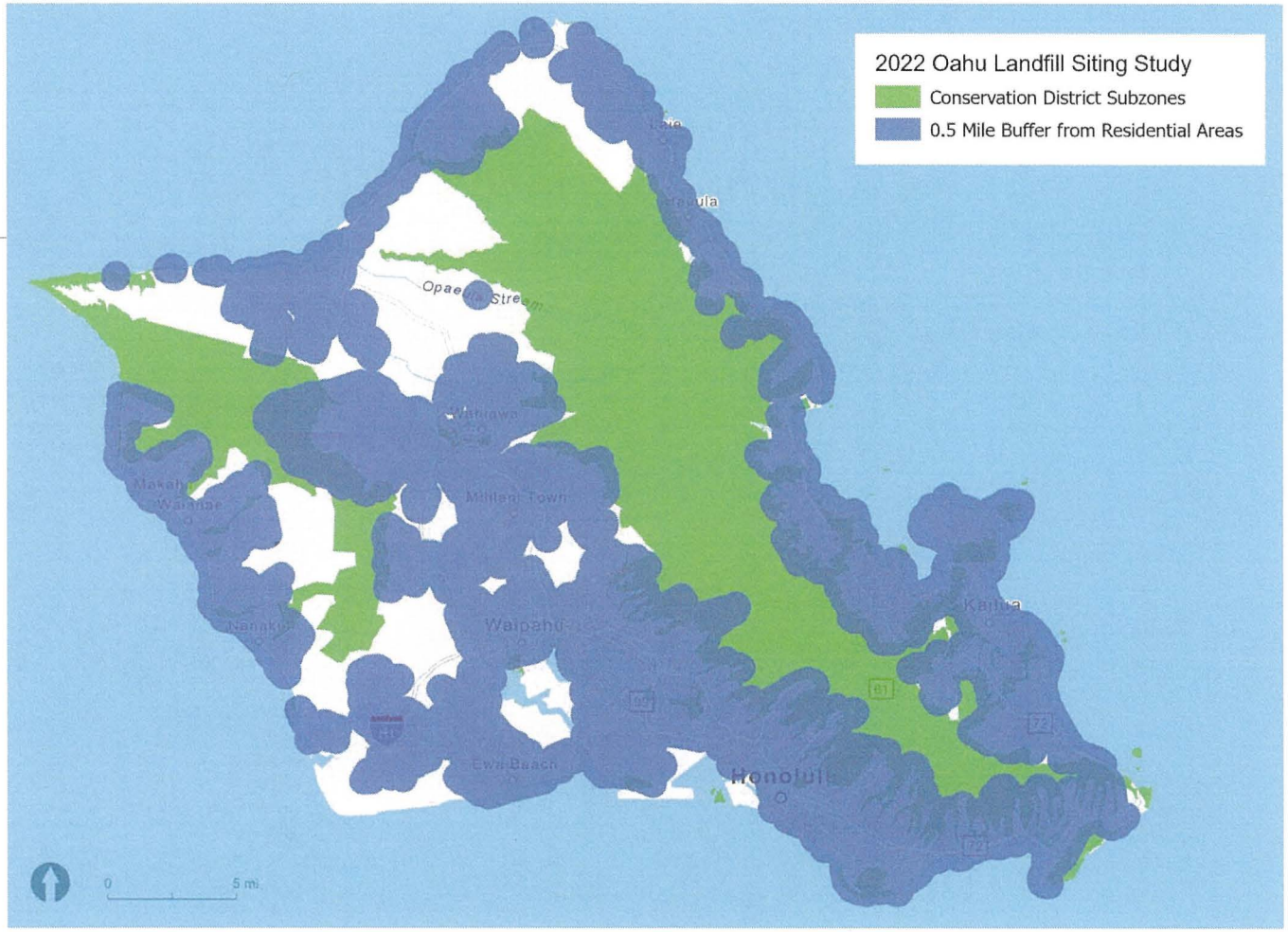


EXHIBIT "A15"

Figure 4.3 11 Final Landfill Sites (2012 MACLSS and 2017 Assessment Studies)

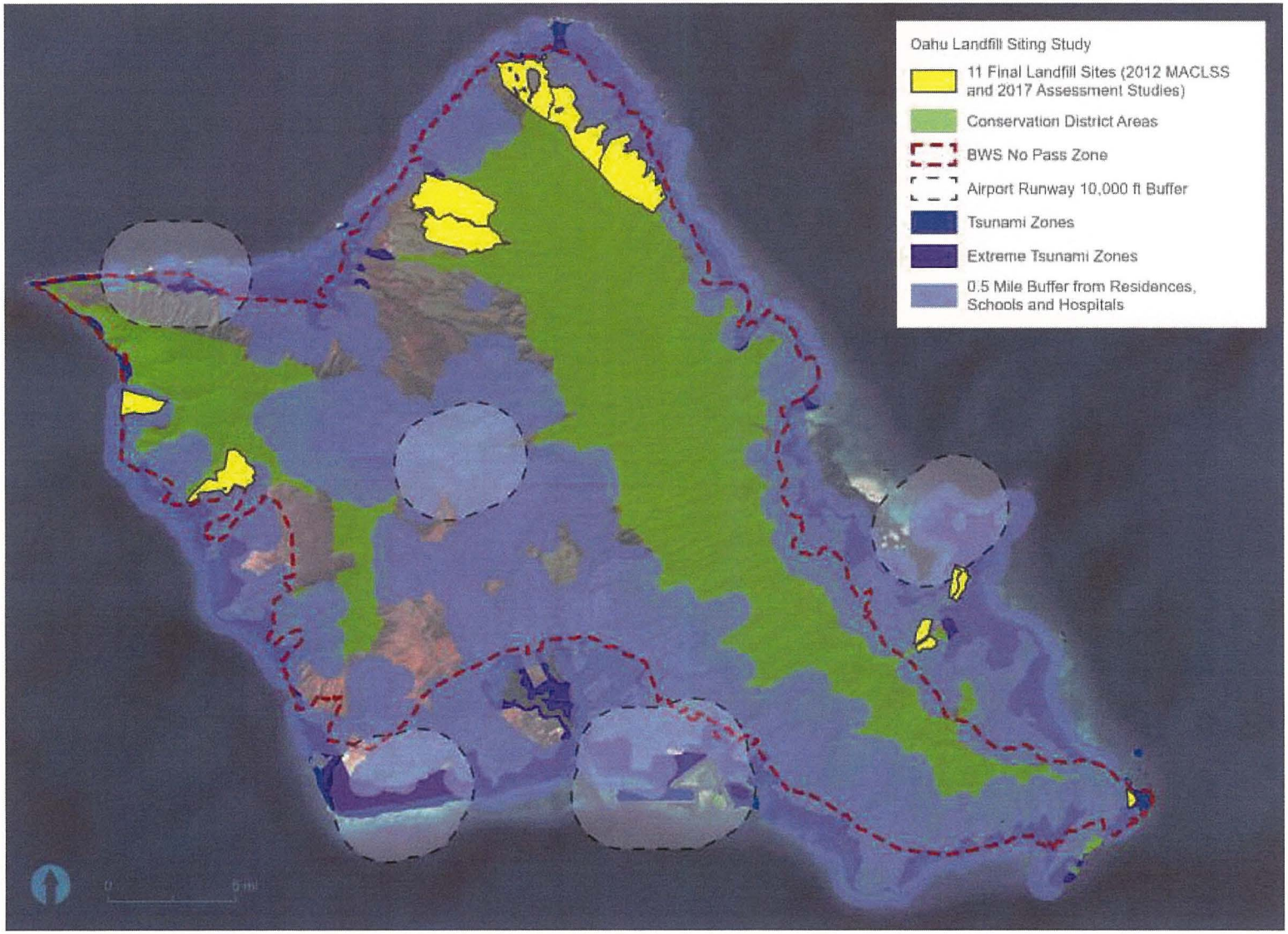


EXHIBIT "A16"