October 13, 2015

2:20 pm

JF called Sonni Escuadro to ask if the white goods/solar building modification application contains any confidential information, or if it can be released as public record. SE stated that the application can be released.

Check Date: Aug/14/2015 | Supplier Number: 0000024875 | Check No: 0000300576

Invoice Number	Invoice Date	Voucher ID	Gross Amount	Discount Taken	Late Charge	Paid Amount
073115B	Jul/31/2015	00060574	1,000.00	0.00	0.00	1,000.00

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Check Number	Date	Total Gross Amount	Total Discounts	Total Late Charge	Total Paid Amount
0000300576	Aug/14/2015	$1,000.00	$0.00	$0.00	$1,000.00

Covanta Honolulu RRV, LLC
Covanta Energy, LLC
445 South Street
Morristown NJ 07960

JPMORGAN CHASE BANK N.A.
Chicago IL

70-2322/719

0000300576

Date Aug/14/2015 **Pay Amount** **$1,000.00*****

Pay ****ONE THOUSAND AND XX/100 DOLLAR****

To The Order Of **State of Hawaii**
919 Ala Moana Blvd. 2nd Floor
Honolulu HI 96814

Authorized Signature

⑈0000300576⑈ ⑆071923226⑆ 958163086⑈

Solid and Hazardous Waste Branch
Department of Health
919 Ala Moana Blvd., Rm. 212
Honolulu, Hawaii 96814
Department or Agency

STATE OF HAWAII
OFFICIAL RECEIPT

No. 53463

DATE: September 1 20 15

RECEIVED from Covanta Honolulu RRV, LLC

one thousand and no/100 DOLLARS

SW permit to modify an existing facility (SWMP No IN-0049-11)

$ 1,000 00

Rosalina Lopez - Cashier
Authorized Signature

check no 0000300576

STATE ACCOUNTING FORM B-24
July 1, 1999 (Revised)

SEP 23 2015 RLC

2015/ELOG-1915 (NI)

Sierra

ATTACHMENT P-5
ZONING CLEARANCE FORM
SOLID WASTE PERMIT APPLICATION

TO THE APPLICANT:

Please be advised that a requirement for the issuance of a solid waste management permit in Hawaii is that the facility meets local ordinances and zoning requirements, including the recording of its disposal facility with the Bureau of Conveyances.

In order that the SHWB may determine whether the facility is in compliance with local land use policy, **we require that this attachment be completed and signed by the appropriate county land use/planning agency** (on Oahu, contact the Department of Planning and Permitting). No permit will be issued unless this form has been properly completed and returned. If a Use Permit or SMA Permit is required, submit a copy of said permit with this form.

Name of Applicant: Wayne Hamada, Interim Energy Recovery, Admin.; Covanta Honolulu Resource Recovery Venture

Name and phone number of primary contact for Applicant:
Amanda Hayasaka (808) 202-6530
Wayne Hamada (808) 768-3408

Address of proposed facility:
91-174 Hanua Street
Kapolei, Hawaii 96707
Tax Map Key: 9-1-26: 30, 33, 34, and 35

Description of proposed facility [e.g., waste processing, waste storage (indoor or outdoor), recycling, composting, waste disposal, etc.): The permit modification application is to add to existing Solid Waste Permit (IN-0049-11) an additional process and structure for White Goods.

COUNTY AGENCY APPROVAL:

The Current Zoning of the Proposed site for the Proposed Activity / Facility / Operation is:
I-2 Intensive Industrial District

X Allowed — Identify Approved Use Permit/SMA, other Restrictions/Limitations: Allowed as "Public Use and Structure"

____ Not Allowed — Reason (ex: Use Permit/SMA required, application pending, etc.):

Name: George I. Atta, FAICP

Title: Director, Department of Planning and Permitting

Agency: City and County of Honolulu

Signature: [signature] Date: September 18, 2015

cc: SDOH, Solid and Hazardous Waste Branch

SEP 23 2015

2015/ELOG-1916 (NI)

ATTACHMENT P-5
ZONING CLEARANCE FORM
SOLID WASTE PERMIT APPLICATION

TO THE APPLICANT:

Please be advised that a requirement for the issuance of a solid waste management permit in Hawaii is that the facility meets local ordinances and zoning requirements, including the recording of its disposal facility with the Bureau of Conveyances.

In order that the SHWB may determine whether the facility is in compliance with local land use policy, **we require that this attachment be completed and signed by the appropriate county land use/planning agency** (on Oahu, contact the Department of Planning and Permitting). No permit will be issued unless this form has been properly completed and returned. If a Use Permit or SMA Permit is required, submit a copy of said permit with this form.

Name of Applicant: Wayne Hamada, Interim Energy Recovery Admin.; Covanta Honolulu Resource Recovery Venture

Name and phone number of primary contact for applicant:
Amanda Hayasaka (808) 202-6530
Wayne Hamada (808) 768-3408

Address of proposed facility:
91-174 Hanua Street
Kapolei, Hawaii 96707
Tax Map Key: 9-1-26: 30, 33, 34, and 35

Description of proposed facility [e.g., waste processing, waste storage (indoor or outdoor), recycling, composting, waste disposal, etc.): The permit application is for the renewal of the existing Solid Waste Permit (IN-0049-11). This permit encompasses both the RDF and Mass Burn municipal waste combustors.

COUNTY AGENCY APPROVAL:

The Current Zoning of the Proposed site for the Proposed Activity / Facility / Operation is:
I-2 Intensive Industrial District

X Allowed — Identify Approved Use Permit/SMA, other Restrictions/Limitations: Allowed as "Public Use and Structure"

____ Not Allowed — Reason (ex: Use Permit/SMA required, application pending, etc.):

Name: George I. Atta, FAICP

Title: Director, Department of Planning and Permitting

Agency: City and County of Honolulu

Signature: [signature] Date: September 18, 2015

cc: SDOH, Solid and Hazardous Waste Branch

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ENERGY
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Covanta Honolulu Resource Recovery Venture
91-174 Hanua St
Kapolei, HI 96707
Tel 808 682 2099
Fax 808 682 5203

RETURN RECEIPT REQUESTED
 # 7012 3460 0000 2670 4015

September 28, 2015

Steven Y.K. Chang, P.E., Chief
Solid and Hazardous Waste Branch
Environmental Management Division
Hawaii State Department of Health
919 Ala Moana Boulevard, Room 212
Honolulu, HI 96814

Attn: Ms. Janice Fujimoto

SUBJECT: Covanta Honolulu Resource Recovery Venture
Permit Modification for Solar Building, P-5
Solid Waste Permit No. IN-0049-11

Dear Mr. Chang:

In reference to the Solid Waste Permit Modification Packet for the Solar Building and Refrigerant Recovery Operations sent to the Solid and Hazardous Waste Branch on August 18, 2015, we received a signed P-5 from the City and County of Honolulu, Department of Planning and Permitting (DPP). The signed form is enclosed for your records.

We appreciate your time and consideration for this project. Should you have any questions, or require further information, please contact me at 808-682-0201, Ms. Amanda Hayasaka at 808-202-6530, or Ms. Sonni Escuadro at 808-349-2513.

Very truly yours,

Robert A. Webster
Facility Manager

AMH:iml
1509016raw

Enclosure

cc: Wayne Hamada, City and County of Honolulu

ATTACHMENT P-5
ZONING CLEARANCE FORM
SOLID WASTE PERMIT APPLICATION

TO THE APPLICANT:

Please be advised that a requirement for the issuance of a solid waste management permit in Hawaii is that the facility meets local ordinances and zoning requirements, including the recording of its disposal facility with the Bureau of Conveyances.

In order that the SHWB may determine whether the facility is in compliance with local land use policy, **we require that this attachment be completed and signed by the appropriate county land use/planning agency** (on Oahu, contact the Department of Planning and Permitting). No permit will be issued unless this form has been properly completed and returned. If a Use Permit or SMA Permit is required, submit a copy of said permit with this form.

Name of Applicant: Wayne Hamada, Interim Energy Recovery, Admin.; Covanta Honolulu Resource Recovery Venture

Name and phone number of primary contact for Applicant:
Amanda Hayasaka (808) 202-6530
Wayne Hamada (808) 768-3408

Address of proposed facility:
91-174 Hanua Street
Kapolei, Hawaii 96707
Tax Map Key: 9-1-26: 30, 33, 34, and 35

Description of proposed facility [e.g., waste processing, waste storage (indoor or outdoor), recycling, composting, waste disposal, etc.): The permit modification application is to add to existing Solid Waste Permit (IN-0049-11) an additional process and structure for White Goods.

COUNTY AGENCY APPROVAL:

The Current Zoning of the Proposed site for the Proposed Activity / Facility / Operation is:
I-2 Intensive Industrial District

__X__ Allowed — Identify Approved Use Permit/SMA, other Restrictions/Limitations: Allowed as "Public Use and Structure"

_____ Not Allowed — Reason (ex: Use Permit/SMA required, application pending, etc.):

Name: George I. Atta, FAICP

Title: Director, Department of Planning and Permitting

Agency: City and County of Honolulu

Signature: [signature] Date: September 18, 2015

cc: SDOH, Solid and Hazardous Waste Branch

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Covanta Honolulu Resource Recovery Venture
91-174 Hanua St
Kapolei, HI 96707
Tel 808 682 2099
Fax 808 682 5203

S
Lone-

RETURN RECEIPT REQUESTED
 # 7012 3460 0000 2670 3919

August 18, 2015

Mr. Steven Y.K. Chang, P.E., Chief
Solid and Hazardous Waste Branch
Environmental Management Division
Hawaii State Department of Health
919 Ala Moana Boulevard, Room 212
Honolulu, HI 96814

Attn: Ms. Janice Fujimoto

SUBJECT: Covanta Honolulu Resource Recovery Venture
Solid Waste Permit Modification Application
Solid Waste Management Permit (No. IN-0049-11)

Dear Mr. Chang:

Covanta Honolulu Resource Recovery Venture and the City and County of Honolulu are submitting a Solid Waste Permit Modification Application to the State of Hawaii, Department of Health, Solid and Hazardous Waste Branch to support the modification project pursuant to Hawaii Revised Statutes 342(G), 342(H), and 342(I), and Hawaii Administrative Rules, Title 11, Chapter 58.1. This proposed modification is a request to add a building onto adjacent parcels west of the HPOWER facility, include white goods as an acceptable waste, and incorporate refrigerant recovery operations. This project will help to increase efficiencies within the City and County Refuse collection, and provide more alternatives for refrigerant recovery on Oahu.

Within the Solid Waste Management Permit, we are proposing the following modifications and additions to the conditions, highlighted in italics where appropriate:

1. Addition of new facility to permit cover.
   Add the following to the "To Operate" section:
   "The operation of the Solar Building includes the operation and maintenance of a white goods, and bulky items recovery facility, and associated appurtenances. Refrigerated white goods will be processed for refrigerant recovery."

   Revise the following "Location" section to read:
   "The waste-energy-facility is located at 91-174 Hanua Street, Kapolei, Hawaii 96707; TMK No. 9-1-026:030. The white goods processing facility is located at 91-184 Kaomi Loop, Kapolei, Hawaii 96707;
   TMK No. 9-1-026:034-35."

2. Addition of Refrigerant Recovery operations.
   Section A.1. currently reads:

   "This facility may receive, store, process, and incinerate MSW for energy recovery. The permittees shall operate the facility in accordance with HAR §11-58.1-20, the application and operations plan received on February 7, 2011, additional information received on July 19, 2011, approved subsequent submissions, and the conditions of this permit. Should there be any discrepancies among the aforementioned documents, HAR and permit conditions shall take precedence."

   Our suggested revision to read:

   "This waste-to-energy facility may receive, store, process, and incinerate MSW for energy recovery. *The white goods processing facility may receive, store, process, to include refrigerant recovery, and manage white goods for recycling by a certified recycler.* The permittees shall operate the facility in accordance with HAR §11-58.1-20, the application and operations plan received on February 7, 2011, additional information received on July 19, 2011, approved subsequent submissions, and the conditions of this permit. Should there be any discrepancies among the aforementioned documents, HAR and permit conditions shall take precedence."

3. Addition and Clarification of white goods as it relates to MSW.
   Recommend adding the following after condition 12:

   "White goods will not be incinerated for energy recovery. Refrigerated white goods will be processed whereby recovering refrigerant will be the primary objective. White goods delivered to the processing facility will not be recycled on-site, they will be sent off-site to a permitted facility for metals recovery."

4. Removing white goods as an unacceptable waste.
   Part II. Section B.14.h. currently reads:

   "(Unacceptable waste is defined as) Scrap automobiles, white goods, and motor vehicle tires, in accordance with HAR 11-58.1-65(c); however, incidental amounts of motor vehicle tires may be accepted."

   Our suggested revision to read:

   "(Unacceptable waste is defined as) Scrap automobiles, and motor vehicle tires, in accordance with HAR 11-58.1-65(c); however, incidental amounts of motor vehicle tires may be accepted."

5. Removing white goods example for unacceptable waste storage.
   Part II. Section B.15.b. currently reads:

   "Unacceptable waste shall be stored in a manner that will minimize the generation of leachate, will not cause spills or leachate to be released, and will not cause any health or safety hazard, littering, odor, dust, or other nuisances. For example, white goods shall be stored in an upright position and shall not be stacked, and lead-acid batteries shall

be placed in a covered storage area on an impervious surface with berms/catch pans or in a covered leak-proof container. The waste shall be transported from the facility prior to posing a nuisance, health, or safety concern."

Our suggested revision to read:

"Unacceptable waste shall be stored in a manner that will minimize the generation of leachate, will not cause spills or leachate to be released, and will not cause any health or safety hazard, littering, odor, dust, or other nuisances. For example, lead-acid batteries shall be placed in a covered storage area on an impervious surface with berms/catch pans or in a covered leak-proof container. The waste shall be transported from the facility prior to posing a nuisance, health, or safety concern."

Included in this application is a modified OMP, and an associated RMP. The RMP outlines our compliance with the Section 608 Refrigerant Recycling Rules (40 CFR, Part 82), and our procedures associated with refrigerant reclamation. Due to the short suspense of this project, we are unable to provide the following portions at this time, but will send each piece at least 30 days prior to operations start:

1. Final Building Plans
2. Facility Notification to EPA as a Refrigerant Recovery Facility
3. Copy of Employee's Certifications as Universal Technicians

The "P-5 ZONING CLEARANCE FORM" is also being routed by the City and County of Honolulu for signature by the Department of Planning and Permitting (DPP) Director. Once a signed form is received, we will send the copy to your office as soon as possible.

Should you have any questions, or require further information, please contact Amanda Hayasaka at 808-202-6530, or M. Sonni Escuadro at 808-349-2513, or myself at (808) 682-0201.

Very truly yours,

for

Robert A. Webster
Facility Manager

AMH:iml
1508005raw

Attachments

cc: Wayne Hamada, City and County of Honolulu

STATE OF HAWAII DEPARTMENT OF HEALTH ENVIRONMENTAL MANAGEMENT DIVISION SOLID AND HAZARDOUS WASTE BRANCH

PERMIT APPLICATION FOR SOLID WASTE MANAGEMENT FACILITY (NOT FOR PERMIT BY RULE)

This permit application was developed in accordance with the requirements of Hawaii Administrative Rules (HAR), Title 11, Chapter 58.1. **In order for this application to be considered complete, completed Attachments P-1 through P-6 and filing fee must accompany this application form.** Please read the general instructions before completing.

I. Type of Application (check all that apply)

A. _____ Permit to establish a new facility
B. X Permit to modify an existing facility
C. _____ Permit renewal with no modification
D. _____ Permit renewal with modification
E. _____ Change in ownership
F. _____ Other

Describe_____

II. Existing pollution control permits and/or variances issued to facility:

Covered Source Permit Nos. 0255-01-C and 0255-02-C, Solid Waste Permit No. IN-0049-11
Water UIC Permit No. UO-1376, Permit to Withdraw and Use Groundwater
National Pollutant Discharge Elimination System (NPDES) File, HI R70B771

III. General Information

A. Name and address of the owner of the solid waste facility:

Wayne Y. Hamada
Department of Environmental Services
1000 Uluohia Street, Suite 201
Kapolei, HI 96707 Telephone: 808-768-3408

B. Name and address of the operator of the solid waste facility:

Covanta Honolulu Resource Recovery Venture
91-174 Hanua Street
Kapolei, HI 96707 Telephone: 808-682-2099

C. Name and address of individual authorized to act for the owner and operator:

Robert A. Webster
91-174 Hanua Street
Kapolei, HI 96707 Telephone: 808-682-2099

D. Name and address of landowner (If landowner is other than the owner/operator of the solid waste facility, include Attachment P-6):

City and County of Honolulu
Department of Environmental Services
1000 Uluohia Street
Kapolei, HI 96707 Telephone: 808-768-3486

E. Name and address of lessee, if appropriate:

N/A

Telephone:

F. Facility Name and Location:

Name:	HPOWER
Address:	91-174 Hanua Street, Kapolei, HI 96707
Tax Map Key:	9-1-026-030

Latitude:	21 °	18 '	30 "	N
Longitude:	158 °	06 '	34 "	W
UTM Coordinates:		Zone 24	East 592.39	North 2356.47

G. Type of Facility (check all that apply)

1. Landfill	MSW	(daily tonnage)		
	C&D	(daily tonnage)		
2. Incinerator		(daily tonnage)	2608	X
3. Solid Waste Processing				
	Transfer Station	(daily tonnage)		
	Recycling/material recovery			
	Salvage			
4. Reclamation Facility				
	Composting			
	Remediation			
5. Special Waste				
	Special waste landfill			
	Medical waste			
	Foreign waste			
	Other Non-Specified Technology			
6. Waste Treatment/Processing /Storage for Disposal				

IV. Normal Operating Schedule

A. Shifts Worked:	HOURS OF DAY
Waste Processing:	
1. From: 05:00	To: 13:00
2. From: 13:00	To: 09:00
Maintenance:	
1. From: 06:00	To: 14:30
2. From: 14:00	To: 22:00
3. From: 22:00	To: 06:00
Operators (RDF, MB):	
1. From: 19:00	To: 07:00
2. From: 07:00	To: 19:00

B. Days per week:	All crews work seven days a week, except for waste processing; works everyday but Saturday.
C. Weeks Per Year:	MBN/PBF-48 weeks a year. RDF-50 weeks a year.
D. Operation is seasonal or irregular, describe:	If either the Refuse Derived Fuel (RDF) or Mass Burn are in outage, the schedules have longer hours of operation.

V. For Permit Renewals and Modifications: Is the existing facility in compliance with Hawaii Revised Statutes (HRS) 342G, 342H and 342I; and Hawaii Administrative Rules (HAR), Title 11, Chapter 58.1, "Solid Waste Management Control"?

Yes X No_____

If the existing facility is not in compliance with HRS 342G, H and/or I; and/or HAR, Title 11, Chapter 58.1, "Solid Waste Management Control", provide a detailed implementation plan as an attachment to the application. The implementation plan should include but is not limited to areas of noncompliance, reason for noncompliance, proposed actions towards achieving compliance, and implementation schedule, as an attachment to the application.

VI. Certification by owner and operator:

We, Wayne Y. Hamada, P.E., (name) Interim Energy Recovery Administrator (Owner) (title)

and Robert A. Webster, (name) Facility Manager (Operator) (title)

certify that we have knowledge of the facts hereby submitted and that the same are true and correct to the best of our knowledge and belief, and that all information not identified as confidential in nature shall be treated by the Department of Health as public record. We further state that we will assume responsibility for the construction, modification, operation, maintenance, closure and post-closure of the facility in accordance with Hawaii Revised Statutes, 342G, H and I; and Hawaii Administrative Rules, Title 11, Chapter

58.1,and any permit issued thereof .Asco-permittees, we understand that we share joint and several liability for compliance with a fore mentioned statutes, regulations, and permits.

If the owner/operator is a partnership or group other than a corporation or a county, one individual who is a member of the group shall sign the application. If the applicant is a corporation or a county, an officer of the corporation, general manager of the facility, or an authorized representative of the county shall sign the application.

Date: 8/18/15 Owner:

Signature: Wayne Y. Yamasaki

Title: Interim Energy Recovery Administrator

Company Name: City & County of Honolulu, Dept. of Environmental Services, Refuse Division

Address: 1000 Uluohia St, Kapolei, Hawaii 96707

Telephone: 808-768-3408

Date: 8/18/15 Operator:

Signature: for Robert Webster

Title: Facility Manager

Company Name: Covanta Honolulu Resource and Recovery Venture

Address: 91-174 Hanua Street, Kapolei, Hawaii 96707

Telephone: 808-682-2099

DO NOT WRITE BELOW ----- FOR AGENCY USE ONLY

VII. Date application received:_____

VIII. Received by:_____

IX. Application number:_____

X. Evaluating Official:_____

XI. Filing fee attached: Yes_____ No_____

XII. Plans and specifications attached: Yes_____ No_____

Attachment P-1	Yes_____	No_____
Attachment P-2	Yes_____	No_____
Attachment P-3	Yes_____	No_____
Attachment P-4	Yes_____	No_____
Attachment P-5	Yes_____	No_____
Attachment P-6	Yes_____	No_____

XIII. Action on application:

Approved:_____

Disapproved:_____

Conditional Approved:_____

XIV. Date of action on application:_____

XV. Permit number:_____

ATTACHMENT P-1
LOCATION DRAWING AND SITE PLAN
RECYCLING AND SALVAGE FACILITIES
SOLID WASTE PERMIT APPLICATION

The following facility drawings shall be submitted, drawn to a reasonable scale and include the following information (show north arrow and scale of drawing):

1. Location Drawing(s)

Provide location drawing(s) indicating the property involved, topographic data, the zoning of the property, and the outline of all structures, access, and fences. Identify property lines plainly. Indicate the location of the property and equipment in relation to nearby streets and all adjacent properties. The location drawing should also identify the name, nature of business, and zoning of all properties adjacent to the applicant's property lines (Private residences may be identifies as residences, unless they are also used as a place of business).

Using USGS Quadrangle Maps, identify all drainage systems and bodies of surface or marine waters, or other sensitive environmental areas within 500 feet of the property lines; and the location of any active groundwater resources within 1000 feet of the facility.

The Covanta Honolulu Resource Recovery Venture (CHRRV), also known as the HPOWER facility, is located in the Campbell Industrial Park within the City of Kapolei, approximately 3,000 feet north of Barbers Point on the southwest corner of Oahu. The proposed Solar Building Site (hereafter also referred to as the "Site") is located directly to the west of the HPOWER facility. The Site is bounded by a Hawaiian Electric Company (HECO) facility and Chevron refinery to the north, Kaomi Loop to the west and a vacant lot owned by the City and County of Honolulu (CCH) to the south. The Site is located on relatively flat terrain at approximately 6 to 8 feet above mean sea level. Topography of the surrounding areas is also relatively flat with gradually increasing elevations in the northeasterly direction. The physical address of the Site is 91-184 Kaomi Loop, Kapolei, Hawaii 96707; with TMK Nos. 9-1-026-034 and 9-1-026-035.

A Site Location map can be found on Figure 1. A Site Plan map can be found on Figure 2. A Topographic Map of the area is provided as Figure 3. A Zoning Map of the area can be found on Figure 4. Description of the neighboring parcels can be found on Figure 5. Environmentally Sensitive Areas are shown on Figure 6. On-site Stormwater drainage patterns can be found on Figure 7.

2. Site Plan

Provide a site plan detailing the sizes and locations of all storage and processing activities, structures, and equipment on the property. Locate waste receiving area; processing areas; unprocessed and processed material storage areas; environmental control systems, including berms, ditches, and basins; and maintenance area. Specify holding capacity for each storage area and/or container. Identify the equipment with unit numbers corresponding to the process flow diagram and the manufacturer's performance data sheets (as required in Attachment P-3). Indicate any containment structures to control the release of liquids; and direction, controls, and containment for surface water flow. Describe measures, such as fencing, gates, or natural barriers, to restrict and control public access onto the facility; vehicular traffic flow in and around the facility; and fire access lanes.

A detailed Site Plan showing the storage and processing activities, structures, and equipment is provided as Figure2. Stormwater drainage patterns are depicted on Figure 7. Traffic flow patterns at the existing and proposed facilities are depicted on Figure 8. Process diagrams for Units 1 and 2 are shown in Figures 9-11. Process diagrams for Unit 3 are shown in Figures 12-19. Process Diagram for the proposed Solar Building are shown in Figure 20.

The purpose of this modification is to add the following to the permitted HPOWER operations; a new building, including white goods as an acceptable material, and add processes related to refrigerant reclamation. The Site will be the primary facility for receiving and processing white goods for the CCH, and is designed to be approximately 140,000 square feet in area. Inside the Solar Building, two concrete bunkers with a combined capacity of 260 cubic yards will be placed adjacent to the receiving bay for stored white goods, and there will be an area designated to hold a 40 cubic yard container. Refrigerant reclamation systems will be located within the white goods processing area.

Delivery of bulky items to the Solar Building is also anticipated. The white goods and bulky item receiving area will be 80,000 square feet and will accept approximately 55,000 units per year of white goods, and 100,000 tons per year of bulky items. All items will be organized and sorted, bulky items will be sent to the Mass Burn plant for further processing, and non-refrigerant containing white goods will be place aside for delivery to a permitted recycler. The refrigerant containing white goods will remain in the Solar Building facility for processing by certified attendants. Processing includes refrigerant recovery, and removal of potential hazardous components.

More detail about the operations is contained in an Addendum to the Operational Maintenance Plan (OMP), contained within this application packet. Solar Building Processing Equipment consists of (3) Bacharach Commercial Refrigerant Recovery Units and (1) RefTec Universal High & Low Pressure Refrigerant Recovery Unit. Equipment specifications are provided in the Refrigerant Management Plan, included in this application packet.

Several containment areas will be designed into the interior facility to contain liquids that may be accidentally released from equipment. There will be grading, sloping and dikes of sufficient size to guide the flow of any liquid material into sumps and containments. The HPOWER facility maintains a Spill Prevention, Control and Countermeasure Plan (SPCCP) which outlines management of spills from oil-containing equipment. This SPCCP will be revised to include the Solar Building operations, as applicable.

In order to minimize stormwater runoff from the Solar Building Site, existing swales will be enhanced to direct stormwater to existing retention and/or infiltration areas on-Site. During a severe rainfall event, stormwater from the Site has the potential discharge via overland flow to the James Campbell Industrial Park stormwater collection system within Kaomi Loop, or to adjacent properties. The Solar Building and associated recycling operations will have its own, independent NPDES permit.

A chain-link fence currently surrounds the entire perimeter of the HPOWER facility and the Solar Building facility, as depicted on Figure 2. The chain-link fence prevents public access and unauthorized personnel from entering the facility grounds. Access to the Solar Building will be provided through vehicular gates at the terminus of Kaomi Loop, and all vehicles will enter the Site through the driveway in this area. A secondary means of ingress / egress is provided to the south of the Solar Building, to be used for emergency access, or for future expansion of the facility. In addition, during off-duty hours, the gates will be closed and locked. Employees and authorized personnel are provided with badges to further secure the site. During the receiving hours, the scalehouse attendant will have a clear view of the front gate, thereby providing another passive security measure. Regular training is also provided to staff which helps them to identify and approach potential personnel risks from unauthorized attendants. A guard station can be located near the front entrance to provide additional security if necessary.

Vehicular traffic within the Solar Building Site will be controlled by traffic stop signs, speed limit signs, speed bumps and individual observations. If a hauler is caught speeding, the driver's license is noted and the incident is reported to the hauling company. HPOWER personnel speak with and consult drivers that do not obey the rules of the facility. Disregard to the warnings could lead to a ban of the driver from the facility.

The access roadway that is located to the north, east, and south of the Solar Building (as depicted on Figure 8) can be used as a fire lane for the fire department during emergency events.

ATTACHMENT P-2
PUBLIC INTEREST
SOLID WASTE PERMIT APPLICATION

Hawaii Revised Statutes (HRS), Chapter 342H, Section 4(c), *Solid Waste Pollution*, requires that the Director of Health approve permits only for those facilities that are in the public interest. This is in addition to those conditions for permit approval as contained in Hawaii Administrative Rules Chapter 11-58.1, *Solid Waste Management Control*. Therefore, the applicant shall submit information regarding the environmental implications of the proposed action, which shall include all relevant and feasible consequences of that action. This information must be submitted by the applicant in the form of a written discussion addressing each of the following major topics:

1. **Environmental impact of the proposed action.** *Explain why the facility is in the public interest in terms of the need for the service; the population and area to be served; the characteristics, quantity and source of materials to be processed; the use and distribution of the processed materials and the method of processed residue disposal. Include discussions of the current waste management system, the environmental cost/benefits of the proposed action and the impacts on current and future land use.*

   The HPOWER facility has been operational for 25 years~~,~~ and provides reliable service to the City. HPOWER takes in an average of 800,000 tons Municipal Solid Waste (MSW) per year, and generates approximately 8 percent of Oahu's electricity daily. Future functions of HPOWER not only will continue its role as an integral community partner, but will also expand upon the existing services it provides. The addition of the Mass Burn third boiler in 2012 has proven successful in waste diversion by increasing our intake to accommodate greater than 90 percent diversion of waste intended for the landfill. Addition of the proposed Solar Building will provide improved recycling alternatives for the CCH to process white goods.

   Hawaii Administrative Rule (HAR), Title 11, Chapter 58.1, Subchapter 6, and CFR §82-154, bans white goods from disposal, effectively requiring them to be recycled. White goods are typically home appliances that include refrigerators, ovens, water heaters, freezers, portable air conditioners, dishwashers, washing machines, dryers, etc. Refrigerated white goods are processed by regulated facilities that can safely manage the units prior to recycling. Refrigerated white goods will be processed at the Solar Building, this only includes refrigerant reclamation, not recycling of refrigerant or recycling the unit for metals recovery. Rarely, white goods may have internal hazardous components such as Polychlorinated biphenyl-(PCB) containing electrical capacitors or light ballasts, mercury-containing switches or relays, etc. Equipment handlers and operators will be trained on evaluating incoming white goods, recognizing if potential hazardous

components exist, segregating them for component removal, and properly managing the potential hazardous item. Refrigerated white goods will be processed by certified technicians, and the refrigerant containerized for sale to an authorized refrigerant recycler. Following processing, the previously-refrigerated white good unit will be shipped to an off-site permitted recycler for further metals reclamation.

The CCH currently manages approximately 55,000 units per year of refrigerant-containing and non-refrigerant-containing white goods, which are collected from homes, community developments and businesses around the island of Oahu. The proposed modification will enhance current recycling capabilities of the Island and support the City in complying with HAR Title 11. The intent of the proposed Solar Building and this modification is to enable the City to comply with HAR Title 11 in two ways: 1) receiving and sorting white goods and other bulky materials; and 2) recovering refrigerants and other recyclable materials. Currently, residents rely on two separate collection services in order to dispose of white goods and bulky items; the addition of the Solar Building will facilitate a more efficient white goods and bulky items collection and disposal/recycling system. The addition of the Solar Building will facilitate consolidation of both collection services into one collection service, thereby reducing the curbside duration of bulky items and white goods awaiting collection, and accommodating the residents of the local community by increasing disposal efficiency and maintaining a clean community appearance.

The Solar Building is located in the Campbell Industrial Park, which is zoned for Intensive and Mixed Use Industrial. The Solar Building is compatible with existing and adjacent land uses, and no future adverse impacts on the Site are anticipated. Existing protected ecological and archeological features that are located near the proposed Solar Building are currently fenced off, will remain fenced off during and following construction, and will be maintained once the facility is operational.

The Solar Building will have a 1.7 Megawatt photovoltaic array that will tie into HPOWER systems to offset internal power use, making operations more efficient and environmentally friendly. Other environmental benefits from the proposed development include safe management of potentially hazardous items recovered from white goods. Furthermore, the environmental controls designed into the Solar Building will fully comply with federal, state, and local permits and programs designed for the protection and stewardship of Hawaii's environmental resources.

The Solar Building is an integral part of the City and County of Honolulu, Integrated Solid Waste Management Plan (ISWMP) and associated programs designed to reduce the solid waste disposal impact on the island, while being safe and environmentally sound. In accordance with the ISWMP goals, the proposed Solar Building will aid in market development while expanding HPOWER recycling capabilities, thus causing the life of the landfill to be extended.

2. **Any adverse environmental effects, which cannot be avoided, should the proposed action be implemented.** *Discuss any potential impacts the facility may have on public health and the environment from items such as air emissions, leachate, drainage, vector attraction, fires, waste storage and processed residue disposal. Discuss how and to what extent those impacts on public health and the environment will be mitigated through the design and operation of the facility. Discuss plans for emergency operating procedures to protect public health and the environment from unplanned releases.*

No adverse environmental effects are expected. The proposed Solar Building is anticipated to result in significant positive benefits such as renewable energy generation due to the facilities 1.7 Megawatt photovoltaic array, which supports the State's goal for renewable energy production. Refrigerant recovery will not be a source of air emissions since the facility will be in compliance with the Refrigerant Recovery Rule, Section 608 of the Clean Air Act. In addition, current HPOWER environmental controls meet or exceed Environmental Protection Agency's (EPA) requirements.

In order to comply with safety and environmental requirements, the facility has developed internal procedures for responding to emergencies such as tidal waves, hurricanes, emergency release, and fires. Members of HPOWER management staff are also members of the Campbell Local Emergency Action Network (CLEAN) and are effectively prepared for emergencies. Furthermore, HPOWER developed a Refrigerant Management Plan (RMP), included in this application, which provides procedures for management of stratospheric ozone depleting substances and maintain compliance with the Section 608 requirements.

White goods sorting and refrigerant recovery operations will be conducted in an enclosed facility, which minimizes any material that would be exposed to the elements. Any white goods handling, storage, processing or transporting will be in accordance with the OMP addendum.

White goods will be stored in a manner that minimizes health, safety and environmental hazards and measures will be taken to prevent oil spills. Solar Building operations personnel are trained to manage small releases and if necessary, make the required notifications if a release is deemed reportable. Furthermore, the facility will be equipped with a sump to collect any unintended spills that may result from the operations. The sump will be managed and inspected on a regular basis.

HPOWER understands that minimization of vectors is a high priority. As a result, procedures have been established at the HPOWER facility to maintain good housekeeping and reduce potential vector proliferation, which will be implemented at the proposed Solar Building facility.

Facility Best Management Practices (BMPs) will be implemented as a requirement to the NPDES permit to manage stormwater at the Solar Building. Existing stormwater swales and retention basins (as depicted on Figure 7) will be utilized at the Solar Building Site to retain stormwater on-site to the maximum extent practicable.

3. **Alternatives to the proposed action.** *Discuss other known alternatives that could feasibly attain the same objective. Explain why they were rejected. Explain why the proposed action represents the Best Practical Technology (BPT). Particular attention must be focused on alternative actions that would reduce or avoid adverse environmental risk and provide a greater cost/benefit to the community. The analysis shall represent a comparative evaluation of the environmental benefits, costs and risks of the proposed action and support the conclusion that it represents BPT.*

   Due to the complexity of the Island's recycling market and process, there are limited alternatives for white goods recycling while meeting the terms of the ISWMP and regulatory requirements. The proposed Solar Building was found to be the most efficient and viable way to process the white goods and recover refrigerants for the City and County of Honolulu. As previously mentioned, the addition of the Solar Building will facilitate the consolidation of both, white goods and bulky item collection services into one collection service. This process efficiently reduces curbside duration of bulky items and white goods, while accommodating the residents of the local community by providing increased disposal efficiency and maintaining a clean community appearance.

   Additionally, the proposed Solar Building represents the BPT since the proposed area is already equipped with the necessary infrastructure including land, roads, transmission lines to HECO, and support systems such as water and utilities, etc. Potential alternate sites would be more costly and would have a greater environmental impact without any identifiable advantages.

4. **The relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity.** *Discuss the effect the operation will have on the site and on the environment on a long-term basis. Discuss the ultimate use of land and surrounding areas as indicated by local zoning codes. Discuss how plans for emergency procedures, final site closure or other steps may mitigate the long-term effects of pollutants. Discuss the long-term impacts the project may have on other waste management alternatives.*

   The proposed Solar Building is located within the heavily industrialized Campbell Industrial Park. The parcel is currently zoned I-2 Heavy Industrial and is expected to remain I-2 in perpetuity. The expansion is therefore expected to have minimal impact on the site and the surrounding area.

The Hawaii Department of Health (HDOH), Clean Air Branch and EPA regulate air emissions from the HPOWER facility. Continuous emission monitors are installed on the two (2) plants (Mass Burn and RDF), calibrated daily, tested and maintained to monitor air emissions from the plant boilers. The Solar Building, because of its compliance with Section 608, will not require continuous monitoring and will have negligible impacts on air quality. Throughout the operations of the HPOWER facility, Covanta has shown commitment to providing beneficial waste disposal for the community in an environmentally conscientious manner; which will continue and expand as the operators of the Solar Building and associated white goods refrigerant recovery operations.

The Solid Waste Management Permit regulates the handling and disposal of MSW at the HPOWER facility, and the proposed modification will allow acceptance / processing of white goods at the adjacent Solar Building. White goods received at the Solar Building will be sorted by their contents (refrigerant containing or non-refrigerated), refrigerant will be recovered, and then the emptied unit transported to a permitted recycling facility. The proposed Solar Building will increase the productivity of the City and County of Honolulu by allowing the collection and processing of combined white goods and bulky waste. In addition, the facility will promote white good processing in an environmentally friendly manner.

In December 2013, the HPOWER facility received a National Pollution Discharge Elimination Systems (NPDES) permit. The Solar Building will have its own, independent NPDES permit issued prior to operation.

No hazardous waste as described under 40 CFR 261 and HAR, Title 11, Chapter 261 will be received at the Solar Building facility. Signage will be posted at the scale and white goods processing area identifying acceptable and unacceptable materials. Hazardous waste will be listed as unacceptable and will not be accepted at the Solar Building, along with any other materials as restricted in the permit. However, in the event a received white good is found to contain hazardous items that could generate hazardous waste, the white good unit and contents shall be managed in accordance with the OMP.

The proposed white goods recycling facility meets the long-term goals of the Hawaii State Plan (Hawaii Revised Statutes [HRS] Chapter 226-15) because it will "promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic" in the City and County of Honolulu. In addition, the proposed modification will comply with all City, State and Federal regulation. No long-term environmental effects are anticipated from the addition of the Solar Building.

5. **Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.** *Identify*

unavoidable impacts and the extent to which the proposed action makes use of non-renewable resources.

HPOWER minimizes the use of irreversible and irretrievable resources. By utilizing municipal solid waste as a fuel, the facility reduced the need for, and the costs associated with, the use diesel fuel oil and coal as fuel for energy generation for the residents of Oahu Consumption of nonrenewable resources, including diesel fuel, will be reduced. Optimized bulky waste collection, including white goods, will result in fewer vehicle trips, leading to reductions in fuel consumption, mileage, and air emissions. Furthermore, the proposed Solar Building is anticipated to result in significant positive benefits such as renewable energy generation due to the facility's 1.7 Megawatt photovoltaic array that will tie into HPOWER systems to offset internal power use making usage more efficient, environmentally friendly while supporting the State's goal for renewable energy production.

6. **Optimum balance between economic development and environmental quality.** *Discuss whether the proposed action promotes the optimum balance between economic development and environmental quality.*

   The facility enables economic development on the island in an environmentally conscious manner. Without a means of properly and cost- effectively disposing the island's municipal solid waste, there would be a negative impact on economic development and environment. The ability of HPOWER to reduce the volume of post recyclable municipal solid waste by 90 percent and by producing energy in an environmentally sound matter enables the City and County of Honolulu to flourish, and be consistent with its sustainability initiatives.

   The proposed permit modification and construction of the Solar Building facility will allow the acceptance of mixed white goods and bulky items, which will enhance the positive impacts of the HPOWER facility on the City and County of Honolulu by promoting recycling. No adverse environmental impacts are anticipated, and sensitive habitats or cultural features will be protected.

7. **Consistency with the State Integrated Solid Waste Management Act (HRS 342G) and the County's Approved Integrated Solid Waste Management (ISWM) Plan.** *Address the project's conformance with the State waste diversion goals and hierarchy. Discuss the project's impact on the State's current or proposed waste diversion efforts, and the County's overall integrated solid waste management plan.*

   The facility was designed to be consistent with the State and County waste management plans. HPOWER is an integral part of both plans and will continue to be so in the upcoming years. The primary goal of the ISWMP is to reduce our dependence on land filling, which is the main function of the HPOWER facility.

The facility combusts municipal solid waste into energy, saving hundreds of thousands of dollars in fuel oil costs. In addition, the facility recycles both ferrous and non-ferrous metal in the waste stream. The facility and the proposed addition are consistent with the City and County of Honolulu's ISWMP. The proposed modification will enhance the current recycling capabilities of the Island and provide reassurance that the City will comply with HAR Title 11 while assisting in market development.

8. **Public input relating to the impact of the facility on public health and the environment.** *Address any requirements for public comment period or hearing under HRS Chapter 343 (Environmental Impact Statement) or local land use ordinances. The applicant should solicit public input on the proposed project. Public input may be solicited through the use public hearings, public informational meetings coordinated with the appropriate community boards or associations or other approved mechanisms. The location of the meetings should be held in the district in which the project will be located. A copy of the meeting minutes should be submitted to the Department as part of this solid waste permit application. For municipal solid waste management facilities, a minimum a 30-day public notice is required.*

   The Solar Building Environmental Assessment (EA) draft will be published in the Office of Environmental Quality Control, Environmental notice dated August 8, 2015. All comment and public input will be provided during the comment period. The EA includes discussion on white goods processing and refrigerant recovery for public review.

ATTACHMENT P-3
SITE ANALYSIS, FACILITY DESIGN, AND OPERATIONS PLAN
RECYCLING AND SALVAGE FACILITIES
SOLID WASTE PERMIT APPLICATION

Submit a Site Analysis, Design, and Operations Plan for the facility. Any information requested below that is not applicable should be justified.

1. **Site Analysis.** Submit a site analysis of the facility that includes at a minimum the following:

   a. Location and operations of all structures including receiving, storage and processing areas on the site (listing storage and processing capacities for each material type received), offices, maintenance areas, planned areas for expansion, and property boundaries. Discuss adequacy of the land available for the proposed activity, including turnaround areas for vehicular traffic.

      - A detailed Site Plan showing the above information is provided as Figure 2. Detailed Site Plan showing vehicular traffic flow can be found on Figure 8. Process flow diagram for the Solar Building are shown on Figure 20. More detailed information can be found in Attachment P-1.

   b. Impacts on neighboring properties and measures taken to mitigate interference with those existing or anticipated uses. This evaluation should include the identification of any nearby surface waters, wetlands, or other sensitive environmental areas.

      - A Site Location map can be found is presented as Figure 1 and a detailed Site Plan is provided as Figure 2. Description of the neighboring parcels can be found on Figure 5. Environmentally Sensitive Areas are shown on Figure 6. On-site Stormwater drainage patterns can be found on Figure 7.

        The Covanta Honolulu Resource Recovery Venture (CHRRV), also known as the HPOWER facility, is located in the Campbell Industrial Park within the City of Kapolei, approximately 3,000 feet north of Barbers Point on the southwest corner of Oahu. The proposed Solar Building Site(hereafter referred to as the "Site") is located directly to the west of the HPOWER facility. The Site is bounded by a Hawaiian Electric Company (HECO) facility and Chevron refinery to the north, Kaomi Loop to the west and a vacant lot owned by the City and County of Honolulu (CCH) to the south. The Site is located on relatively flat terrain at approximately 6 to 8 feet above mean sea level. Topography of the surrounding areas is also relatively flat with gradually increasing elevations in the northeasterly direction. The physical address of the proposed Solar Building Site is 91-184 Kaomi Loop, Kapolei, Hawaii 96707; with TMK No. 9-1-026-034 and 9-1-026-035.

The closest body of water is the Pacific Ocean located approximately 500 feet to the west of the facility. Despite its close proximity to the Pacific Ocean from the perimeter of the Site, the facility will have sufficient containment to alleviate any potential environmental concerns relating to stormwater discharges.

Nearly all vehicles approaching the Campbell Industrial Park use the Campbell Industrial Park exit off the H-1 Freeway. The remainder use either Farrington Highway to reach local destinations or conduct refuse collection within the Campbell Industrial Park. The most direct route to the Solar Building from the H-1 exit is the Kalaeloa Boulevard/Komohana Road to Hanua Street route.

A security gate entrance to the facility is posted and trespassers are subject to prosecution. The posting system, along with the security gate, police assistance and Campbell Industrial Park security personnel, is the standard road access control system for Campbell Industrial Park. The proposed Solar Building will be subject to the same security measures

The facility is in an industrial park with adjacent facilities conducting industrial activities. There is little or no impact on those facilities in conducting their business.

2. **Facility Design and Operation Plan.** Submit a written operation plan for the facility that includes at a minimum the following:

   a. Identification and qualifications of the individuals in charge of the facility operations, individuals that are trained to operate the equipment at the facility, and individuals requiring specific licenses or certificates (i.e. refrigerant removal).

   b. A general description of the facility including relevant design concepts and construction drawings. The description should discuss facility capacity in terms of throughput and storage, contingency plans in the event of equipment failure, inability to dispose of or distribute the processed material and regular maintenance requirements.

   c. Description of the sources and types of recoverable materials to be collected, stored, treated, and/or disposed; and expected volumes/tonnages. Describe the method of collection and transportation of recoverable materials to the facility. Identify any tests or screening methods that will be utilized to determine that the material is acceptable. Describe any voucher/transaction system used to provide a record of solid waste transactions as it applies to your operation. All records of testing and transactions are required to be kept for a period of five years.

d. Description of how all accepted waste, rejected or bypass waste, residue, and recovered recyclables will be weighed or measured.

e. Description of the operational procedures involved. Provide a step-by-step description of the process from receipt of waste through screening, processing, storage, and disposal/recycling. Include a process flow diagram detailing this process, with equipment identification numbers, and specifying storage and processing capacities for each type of recyclable accepted, and any residuals resulting from the process or storage.

f. Description of the type and number of equipment and storage containers to be used at the facility. Describe how the equipment will be used in the operation of the facility. Include the manufacture's performance data for each process equipment unit, fixed or mobile, including: type of device (loader, baler, shredder, screener, etc.), process flow diagram number, material process (type of material, amount, end product, residual), and design rated capacity. Describe the type and number of storage containers used, material that will be stored in the container, storage capacity (weight [tons or pounds] and volume [cubic yards]) and spill catchment/leachate collection system

g. Description of the final disposition of recyclables and waste. All solid waste passing through the facility shall be recycled, or disposed of at a permitted solid waste management facility. Recyclables may be sold to end markets. Discuss the frequency of removal of each type of recyclable, rejected/by pass waste, or residual, and its destination.

h. Discussion of all environmental controls. The discussion should include the facility design and operational procedures to be used to prevent contamination of soil, groundwater and surface waters (including description of ground surfacing). Discuss how leachate will be collected and managed. Include response procedures and sampling plan in the event of an unplanned release of a contaminant into the environment. The sampling plan may be revised, depending on the nature of the suspected release to the environment.

i. Description of the facility's drainage system to prevent standing water and to control "run-on" and "run-off" of rainwater.

j. Discussion of the design and operational procedures to minimize and control vectors, odors, litter, dust and other nuisances. The facility shall maintain a neat and orderly appearance and design elements must be included to screen and buffer the operations to minimize nuisances to neighboring properties.

k. A fire prevention and response plan to mitigate fire hazards (i.e. design and operational controls) and detail responses should a fire occur (i.e. fire control devices, access for fire department personnel and equipment).

l. The design for access control, and fencing. Describe measures, such as fencing, gates or natural barriers to restrict and control public access onto the facility.

m. A copy of a posted sign that displays owner or operator of the facility, the hours of operation and a contact in case of emergency. The sign shall clearly state which wastes are or are not acceptable at the site.

n. Discussion on the types of operational records to be maintained. At a minimum, operational records shall be maintained and shall include a daily log of the volume or weight of each type of materials received, rejected, processed, recycled and/or disposed; and the final destination of each material. An annual report shall be submitted to the Department reporting the quantities and types of waste received and processed; the origin and transporter of the solid waste and the ultimate disposal/recycling site.

- The items in this section are addressed in the OMP Addendum, and the Refrigerant Management Plan provided within this application. A detailed Site Plans and Maps are included as Figures to P-1 and P-2 within this application.

ATTACHMENT P-4
CLOSURE PLAN
INCINERATION, TRANSFER STATION, RECYCLING, SALVAGE, COMPOSTING, REMEDIATION, MEDICAL/FOREIGN WASTE TREATMENT, OR WASTE TREATMENT/PROCESSING/STORAGE FOR DISPOSAL FACILITIES SOLID WASTE PERMIT APPLICATION

All Solid Waste Management Facilities are required to prepare and maintain a closure plan. **The closure plan** shall include, but is not limited to, the following information:

1. The identification of any contaminants inherent to the specific facility operation.

2. Day to day operation methods to deal with contaminant and releases at the site.

3. A narrative and flow chart of how the closure will occur at the site. The narrative should review the contaminant compounds of concern, how a detection and testing program will be used at site closure, and the steps to be taken if contaminant compounds are detected, including proposed remedial actions. A flow chart should be provided to explain how the steps will be implemented.

4. A contaminant release log during the life of the site and results of any environmental sampling/investigation at the site should be included as part of the closure planning. The Director of Health may require complete and detailed plans or reports (i.e. site assessment, remediation plans) on solid waste facilities in the event of any releases and/or incidences at the facility.

5. A schedule for implementation of the plan.

An updated closure plan must be completed and submitted for approval 180 days prior to the termination or closure of the facility. Closure of a facility may also be initiated by a permit revocation by the Director of Health, or eviction by the property owner. The updated closure plan shall consist of an updated implementation schedule, the contaminant release log, results of any past environmental sampling/investigation at the site, and any necessary modifications required as a result of the operations.

- Once the facility is notified to shut down operations, the facility operator at that time will work closely with the City and County of Honolulu and HDOH to ensure proper closure of the facility. A detailed closure schedule will be prepared at that time. Once a determination that the facility is to be closed, all concerned parties will be notified via mail. This notification will be coordinated between the City and the operator of the plant at that time.

  The facility in conjunction with the City and County of Honolulu will notify haulers prior to the cessation of plant operations. The facility will clear all Solar Building material, MSW storage rooms, RDF storage room, and refuse pits by utilizing all the materials. Operations will cease after all RDF and/or refuse has been processed and utilized. All

bottom ash, combined ash, unprocessable materials, and RDF processing residue will be hauled to the landfill or other appropriate disposal facility. The owner of the equipment will determine the final disposition of the equipment. Equipment that can be dismantled and auctioned will be auctioned. Equipment that cannot be recycled will be disposed of in an appropriate manner. Building structures and stacks will be demolished and the construction and demolition debris will be hauled off to the recycling center. The future owner or lessee of the property may choose to regrade the site to meet their intended use.

All diesel fuel oil in the underground diesel storage tank (UST) and above ground storage tanks at the HPOWER Site will be utilized to the maximum extent possible. Once empty these tanks will be cleaned and prepared for removal. The UST will be removed according to the UST regulation in effect at that time.

An environmental consulting firm will be hired to assist the facility in properly closing the site. The site will be visually inspected and appropriate tests will be conducted as necessary to confirm if any contamination has occurred.

If any material at the site is questionable, the material will be tested prior to disposal.

The underground injection control (UIC) office of Hawaii Department of Health (HDOH) will be notified of the closure of the wells at the HPOWER Site. The wells will be closed according to the regulations. Piping from the power block control facility to the cooling tower will be removed or left in place. The HDOH will be consulted for the proper disposition the piping.

Sanitary systems on the site will be properly closed. Septic tanks will be cleaned and removed from ground. The HDOH will be consulted for the proper closure procedures.

Prior to closure the facility will handle all day-to-day releases to the environment following the procedures that are currently in place.

ATTACHMENT P-6
PROPERTY OWNER APPROVAL FORM
SOLID WASTE PERMIT APPLICATION

TO THE APPLICANT:

In order that the SHWB may determine whether the property owner and/or master lessee is knowingly allowing the proposed solid waste activity, we require that this attachment be completed and signed by the property owner and the master lessee, if appropriate. **No permit will be issued unless this form has been properly completed and returned.**

Name of Applicant: Covanta Honolulu Resource Recovery Venture
Name and phone number of primary contact for applicant:
Robert A. Webster, Facility Manager
808-682-2099

Address of proposed facility:
91-184 Kaomi Loop
Kapolei, HI 96707
Tax Map Key: To add TMKs 9-1-026-033, 9-1-026-034 and 9-1-026-035 to 9-1-026-030

Description of proposed facility [e.g., waste processing, waste storage (indoor or outdoor), recycling, composting, waste disposal, etc.): White goods recycling

PROPERTY OWNER / MASTER LESSEE APPROVAL:

I/We certify that I/we have knowledge and approve of the applicant's proposed solid waste management facility for the subject location. I/We further certify that I/we fully understand the requirements under HAR Chapter 11-58.1, Subchapter 6, such that I/we am/are also responsible for the aesthetic, nonhazardous, sanitary storage, and removal of solid waste to approved solid waste management facilities.

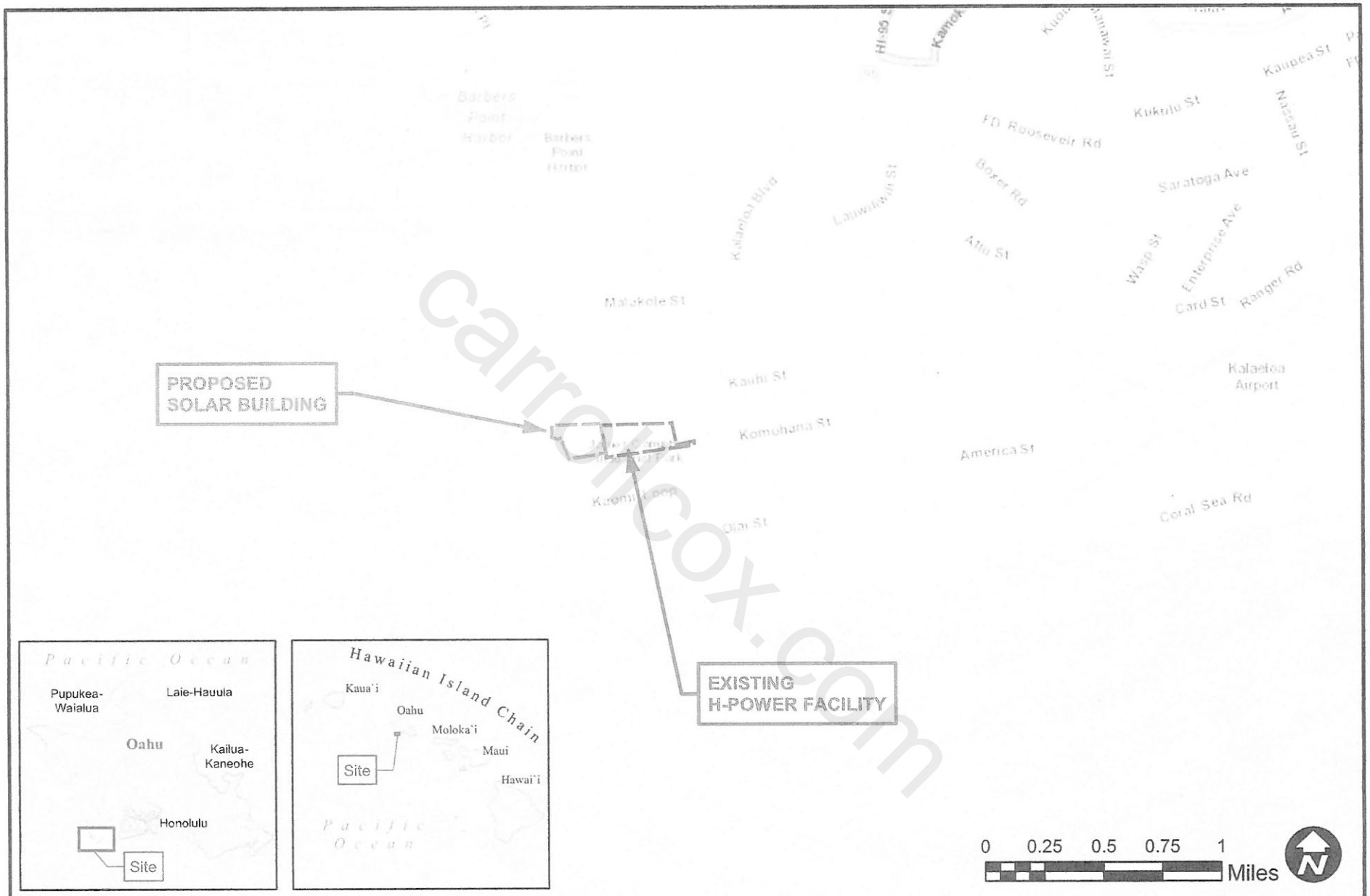
If the property owner/master lessee is a partnership or group other than a corporation, a county, or state entity, one individual who is a member of the group shall sign this form. If the property owner/master lessee is a corporation, a county, or a state entity, an officer of the corporation, or an authorized representative of the county or state shall sign this form.

Property Owner:
Name of Authorized Representative: Wayne Y. Hamada
Signature: Wayne Y. Hamada Date: 5/18/15
Title: Interim Energy Recovery Administrator Telephone: 808-768-3486

Company Name: City and County of Honolulu, Department of Environmental Services
Address: 1000 Ulohia St, Kapolei, HI 96707 Termination date of lease/approval:

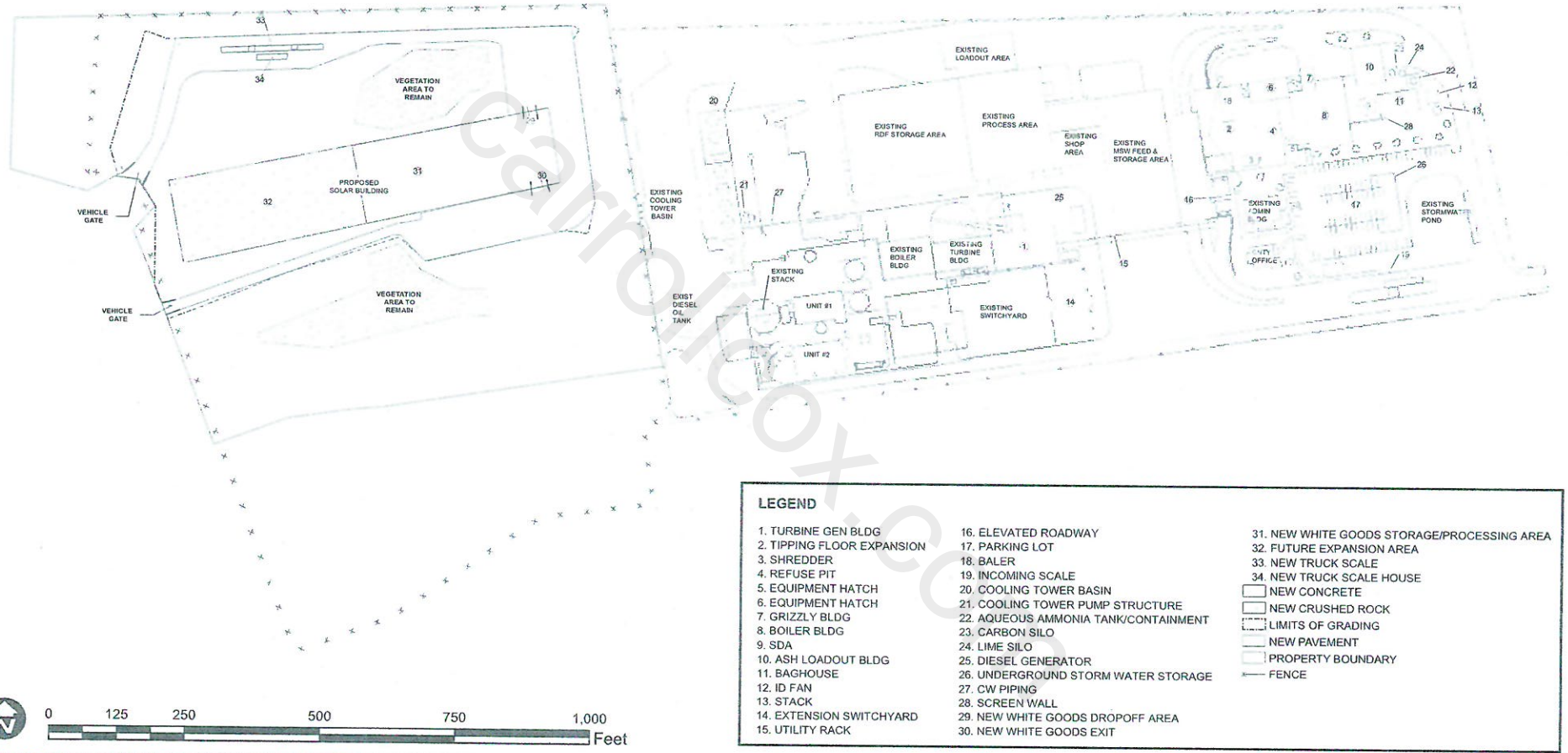
Master Lessee:
Name of Authorized Representative: N/A
Signature: Date:
Title: Telephone:
Company Name: Termination date of
Address: lease/approval:

Rev. 1/2005



NOTE:		CLIENT: Covanta Energy, 91-174 Hanua Street; Kapolei, HI 96707	DWN BY: CAW	PROJECT: H-POWER Solid Waste Management Permit Application	DATE: 8/06/15
			CHK'D BY: LC		PROJECT NO.: 1547100009
		Amec Foster Wheeler Environment & Infrastructure, Inc., 98-1238 Kaahumanu St. Suite 400, Pearl City, Hawaii 96701	DATUM: NAD 1983	TITLE: SITE LOCATION MAP	REV. NO. 2
			PROJECTION: UTM 4N		FIGURE NO.: FIGURE 1
			SCALE: 1 " = 3,000 '		

P:\Project\3471 Projects\1547100009 - H-POWER\GIS Support\Figure 1 - Site Location Map.mxd



LEGEND

1. TURBINE GEN BLDG
2. TIPPING FLOOR EXPANSION
3. SHREDDER
4. REFUSE PIT
5. EQUIPMENT HATCH
6. EQUIPMENT HATCH
7. GRIZZLY BLDG
8. BOILER BLDG
9. SDA
10. ASH LOADOUT BLDG
11. BAGHOUSE
12. ID FAN
13. STACK
14. EXTENSION SWITCHYARD
15. UTILITY RACK
16. ELEVATED ROADWAY
17. PARKING LOT
18. BALER
19. INCOMING SCALE
20. COOLING TOWER BASIN
21. COOLING TOWER PUMP STRUCTURE
22. AQUEOUS AMMONIA TANK/CONTAINMENT
23. CARBON SILO
24. LIME SILO
25. DIESEL GENERATOR
26. UNDERGROUND STORM WATER STORAGE
27. CW PIPING
28. SCREEN WALL
29. NEW WHITE GOODS DROPOFF AREA
30. NEW WHITE GOODS EXIT
31. NEW WHITE GOODS STORAGE/PROCESSING AREA
32. FUTURE EXPANSION AREA
33. NEW TRUCK SCALE
34. NEW TRUCK SCALE HOUSE

NEW CONCRETE
NEW CRUSHED ROCK
LIMITS OF GRADING
NEW PAVEMENT
PROPERTY BOUNDARY
FENCE

NOTE:

CLIENT: **Covanta Energy**
91-174 Hanua Street; Kapolei, HI 96707

Amec Foster Wheeler
Environment & Infrastructure, Inc.
98-1238 Kaahumanu St. Suite 400
Pearl City, Hawaii 96701

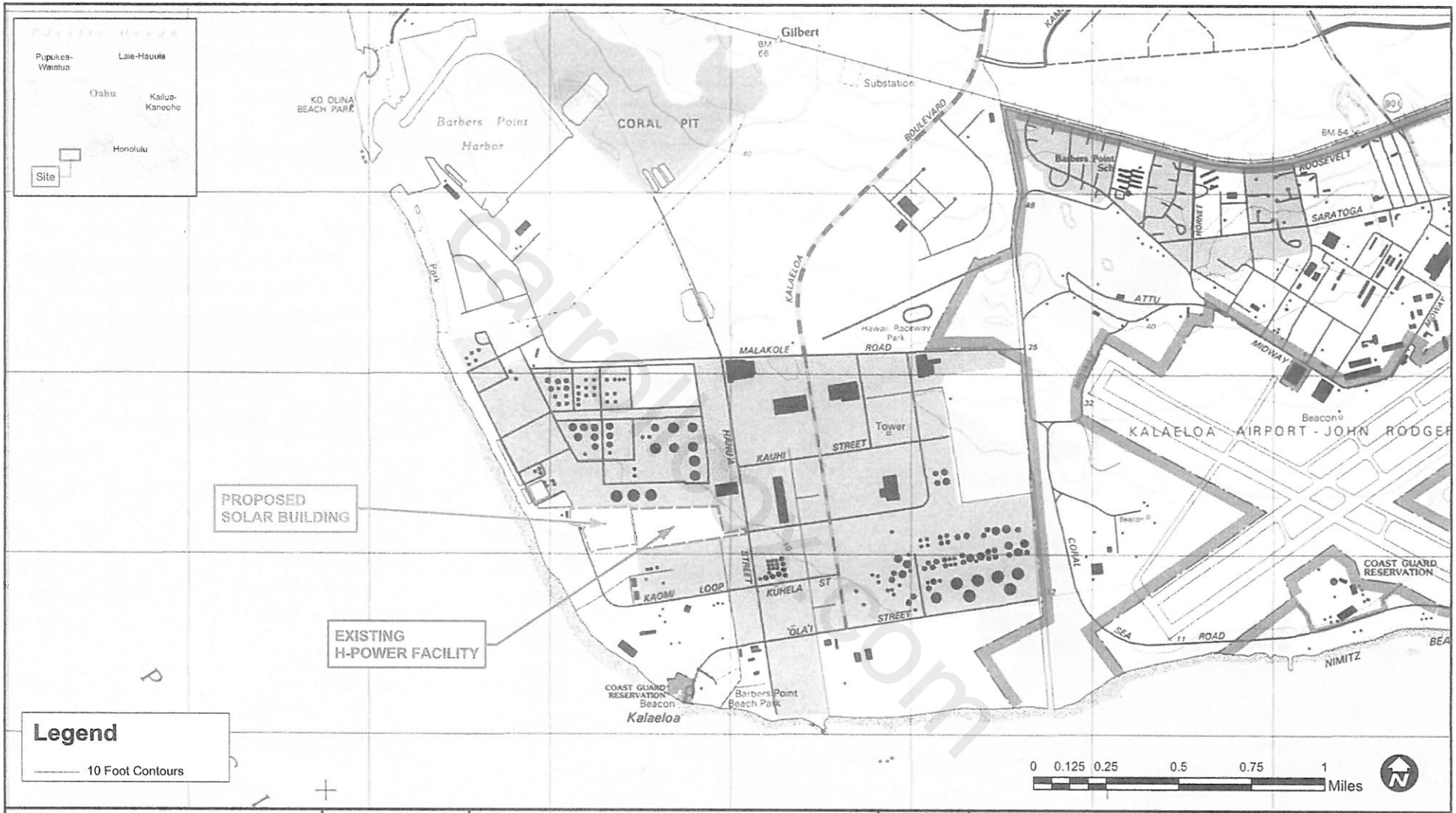
DWN BY: CAW
CHK'D BY: LC
DATUM: NAD 1983
PROJECTION: UTM 4N
SCALE: 1 inch = 200 feet

PROJECT: H-POWER Solid Waste Management Permit Application

TITLE: SITE PLAN

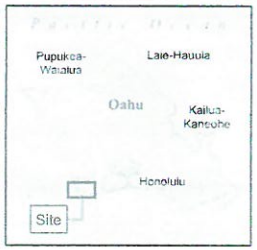
DATE: AUGUST 2015
PROJECT NO.: 1547100009
REV. NO.: 2
FIGURE NO.: FIGURE 2

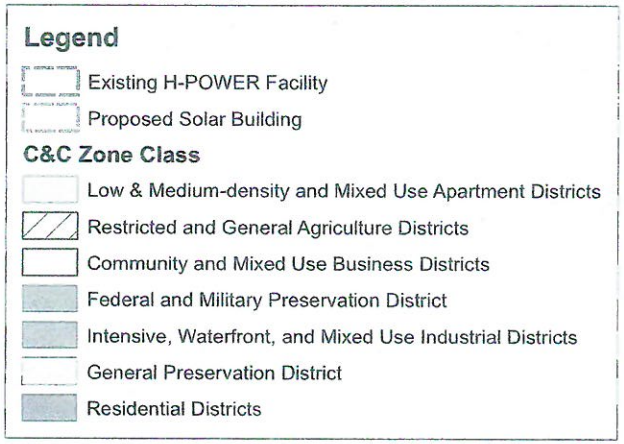
P:\Project\3471 Projects\1547100009 - H-POWER\GIS Support\Figure 2 - Site Plan.mxd

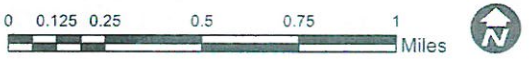


NOTE:		CLIENT: Covanta Energy, 91-174 Hanua Street; Kapolei, HI 96707	DWN BY: CAW CHKD BY: LC	PROJECT: H-POWER Solid Waste Management Permit Application	DATE: AUGUST 2015 PROJECT NO.: 1547100009
		Amec Foster Wheeler Environment & Infrastructure, Inc., 98-1238 Kaahumanu St. Suite 400, Pearl City, Hawaii 96701	DATUM: NAD 1983 PROJECTION: UTM 4N SCALE: 1 inch = 1,600 feet	TITLE: TOPOGRAPHIC MAP	REV. NO.: 2 FIGURE NO.: FIGURE 3

P:\Project\3471 Projects\1547100009 - H-POWER\GIS Support\Figure 3 - Topographic Map.mxd







NOTE:

CLIENT:
Covanta Energy
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Pearl City, Hawaii 96701

DWN BY: CAW
CHK'D BY: LC
DATUM: NAD 1983
PROJECTION: UTM 4N
SCALE: 1 inch = 1,600 feet

PROJECT: H-POWER Solid Waste Management Permit Application

TITLE: CITY AND COUNTY ZONING MAP

DATE: AUGUST 2015
PROJECT NO.: 1547100009
REV. NO.: -
FIGURE NO.: FIGURE 4

P:\Project\3471 Projects\1547100009 - H-POWER\GIS Support\Figure 4 - Zoning Map.mxd

NOTE:

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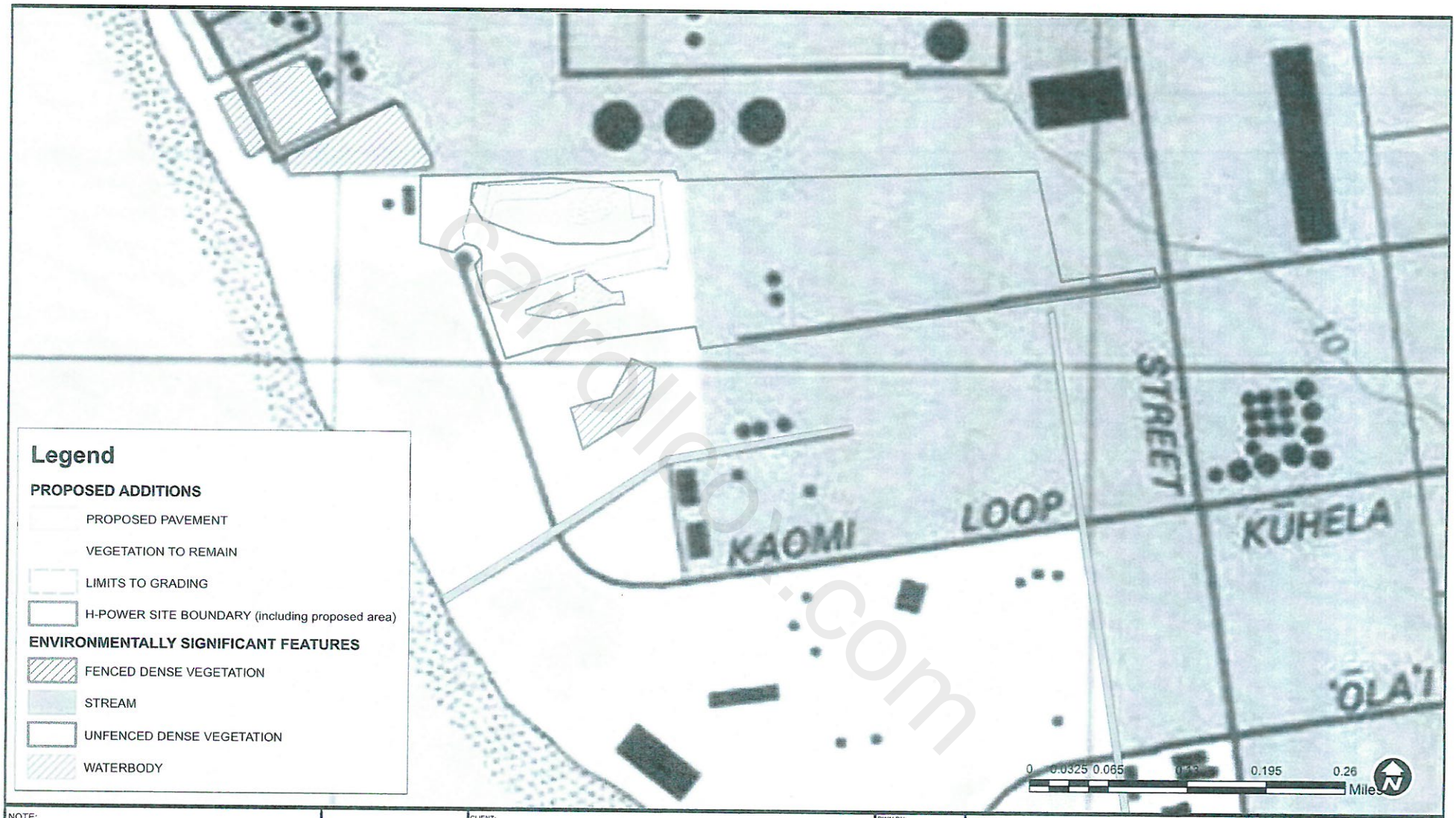
DWN BY:	CAW
CHK'D BY:	LC
DATUM:	NAD 1983
PROJECTION:	UTM 4N
SCALE:	1 cm = 100 feet

PROJECT: H-POWER Solid Waste Management Permit Application

TITLE: NEIGHBORING PARCELS MAP

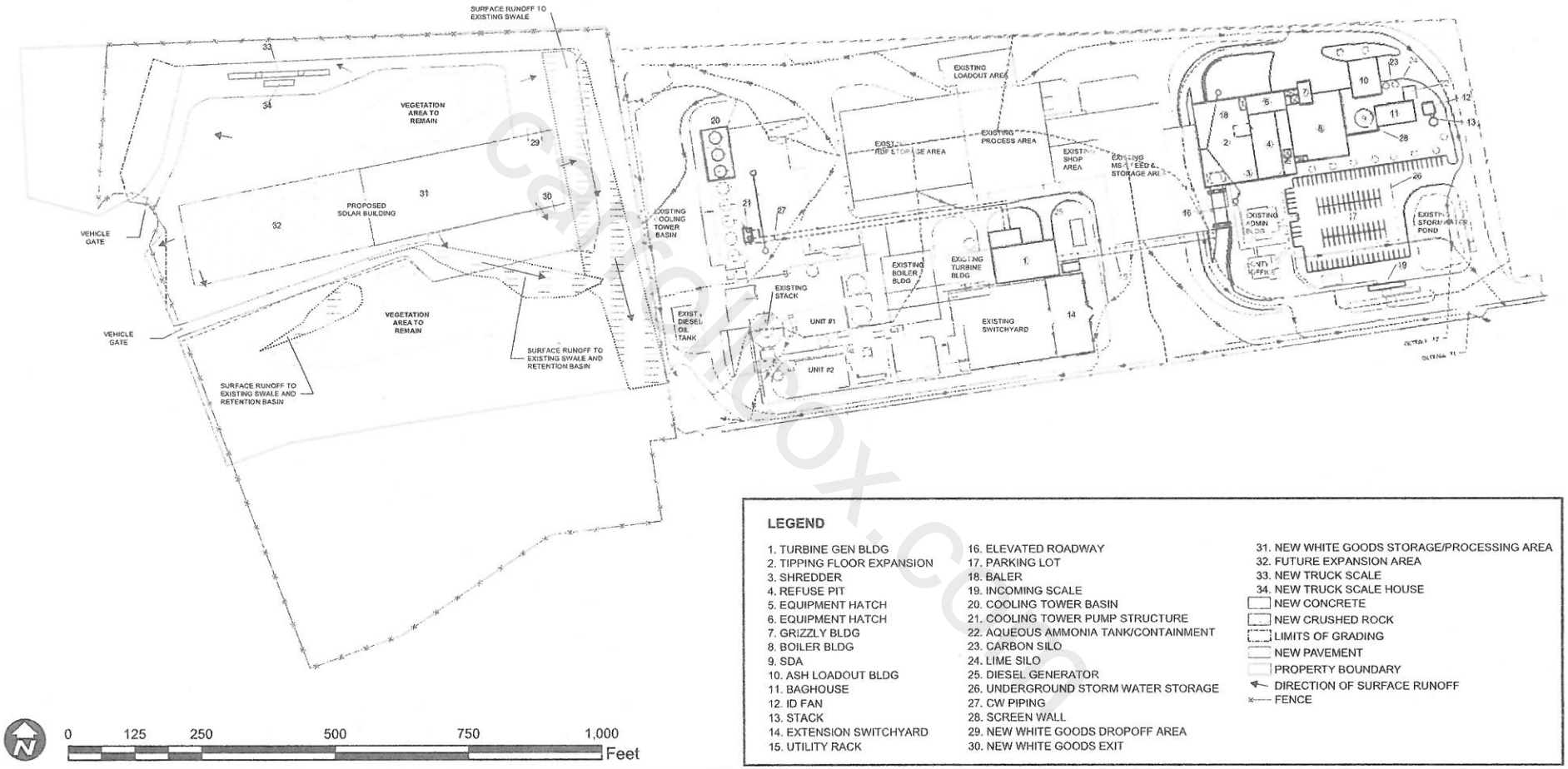
DATE:	AUGUST 2015
PROJECT NO.:	1547100009
REV. NO.:	2
FIGURE NO.:	FIGURE 5

P:\Project\3471 Projects\1547100009 - H-POWER\GIS Support\Figure 5 - Neighborhood Parcels Map.mxc



NOTE:	CLIENT: Covanta Energy, 91-174 Hanua Street; Kapolei, HI 96707	DWN BY: CAW	PROJECT: H-POWER Solid Waste Management Permit Application	DATE: AUGUST 2015	
		CHK'D BY: LC		PROJECT NO.: 1547100009	
	Amec Foster Wheeler Environment & Infrastructure, Inc., 98-1238 Kaahumanu St. Suite 400, Pearl City, Hawaii 96701	DATUM: NAD 1983	TITLE: SENSITIVE ENVIRONMENTAL AREAS MAP	REV. NO.: 1	
		PROJECTION: UTM 4N		FIGURE NO.: FIGURE 6	
		SCALE: 1 inch = 390 feet			

P:\Project\3471 Projects\1547100009 - H-POWER\GIS Support\Figure 6 - Sensitive Environmental Areas Map.mxd



LEGEND

1. TURBINE GEN BLDG
2. TIPPING FLOOR EXPANSION
3. SHREDDER
4. REFUSE PIT
5. EQUIPMENT HATCH
6. EQUIPMENT HATCH
7. GRIZZLY BLDG
8. BOILER BLDG
9. SDA
10. ASH LOADOUT BLDG
11. BAGHOUSE
12. ID FAN
13. STACK
14. EXTENSION SWITCHYARD
15. UTILITY RACK
16. ELEVATED ROADWAY
17. PARKING LOT
18. BALER
19. INCOMING SCALE
20. COOLING TOWER BASIN
21. COOLING TOWER PUMP STRUCTURE
22. AQUEOUS AMMONIA TANK/CONTAINMENT
23. CARBON SILO
24. LIME SILO
25. DIESEL GENERATOR
26. UNDERGROUND STORM WATER STORAGE
27. CW PIPING
28. SCREEN WALL
29. NEW WHITE GOODS DROPOFF AREA
30. NEW WHITE GOODS EXIT
31. NEW WHITE GOODS STORAGE/PROCESSING AREA
32. FUTURE EXPANSION AREA
33. NEW TRUCK SCALE
34. NEW TRUCK SCALE HOUSE
- NEW CONCRETE
- NEW CRUSHED ROCK
- LIMITS OF GRADING
- NEW PAVEMENT
- PROPERTY BOUNDARY
- DIRECTION OF SURFACE RUNOFF
- FENCE

NOTE:

CLIENT:
Covanta Energy
91-174 Hanua Street; Kapolei, HI 96707

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Pearl City, Hawaii 96701

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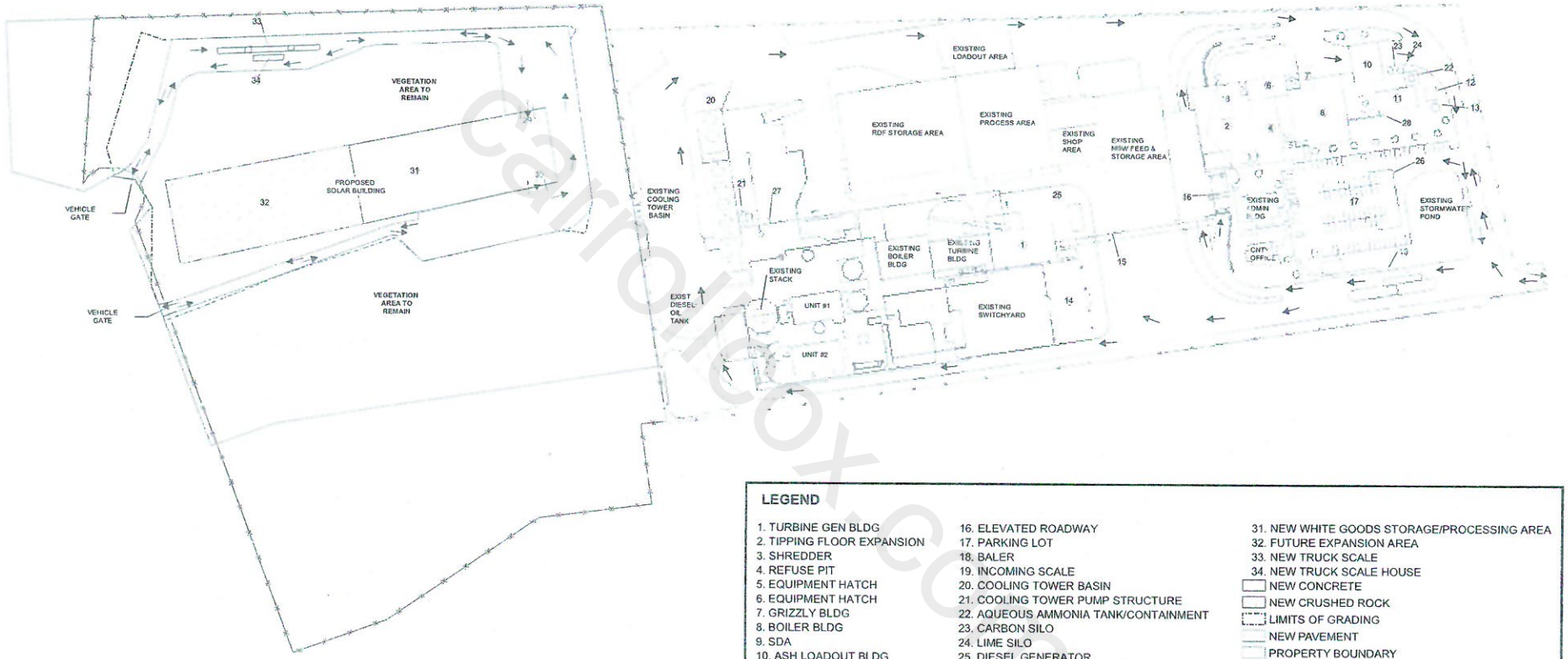
DWN BY: CAW
CHK'D BY: LC
DATUM: NAD 1983
PROJECTION: UTM 4N
SCALE: 1 inch = 200 feet

PROJECT:
H-POWER Solid Waste Management Permit Application

TITLE:
STORMWATER
DRAINAGE PATTERN MAP

DATE: AUGUST 2015
PROJECT NO.: 1547100009
REV. NO.: 2
FIGURE NO.: FIGURE 7

P:\Project\3471 Projects\1547100009 - H-POWER\GIS Support\Figure 7 - Stormwater Drainage Pattern Map.mxd



LEGEND

1. TURBINE GEN BLDG
2. TIPPING FLOOR EXPANSION
3. SHREDDER
4. REFUSE PIT
5. EQUIPMENT HATCH
6. EQUIPMENT HATCH
7. GRIZZLY BLDG
8. BOILER BLDG
9. SDA
10. ASH LOADOUT BLDG
11. BAGHOUSE
12. ID FAN
13. STACK
14. EXTENSION SWITCHYARD
15. UTILITY RACK
16. ELEVATED ROADWAY
17. PARKING LOT
18. BALER
19. INCOMING SCALE
20. COOLING TOWER BASIN
21. COOLING TOWER PUMP STRUCTURE
22. AQUEOUS AMMONIA TANK/CONTAINMENT
23. CARBON SILO
24. LIME SILO
25. DIESEL GENERATOR
26. UNDERGROUND STORM WATER STORAGE
27. CW PIPING
28. SCREEN WALL
29. NEW WHITE GOODS DROPOFF AREA
30. NEW WHITE GOODS EXIT
31. NEW WHITE GOODS STORAGE/PROCESSING AREA
32. FUTURE EXPANSION AREA
33. NEW TRUCK SCALE
34. NEW TRUCK SCALE HOUSE

- NEW CONCRETE
- NEW CRUSHED ROCK
- LIMITS OF GRADING
- NEW PAVEMENT
- PROPERTY BOUNDARY
- TRAFFIC FLOW DIRECTION
- FENCE

NOTE:

CLIENT:
Covanta Energy
91-174 Hanua Street; Kapolei, HI 96707

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Environment & Infrastructure, Inc.
98-1238 Kaahumanu St. Suite 400
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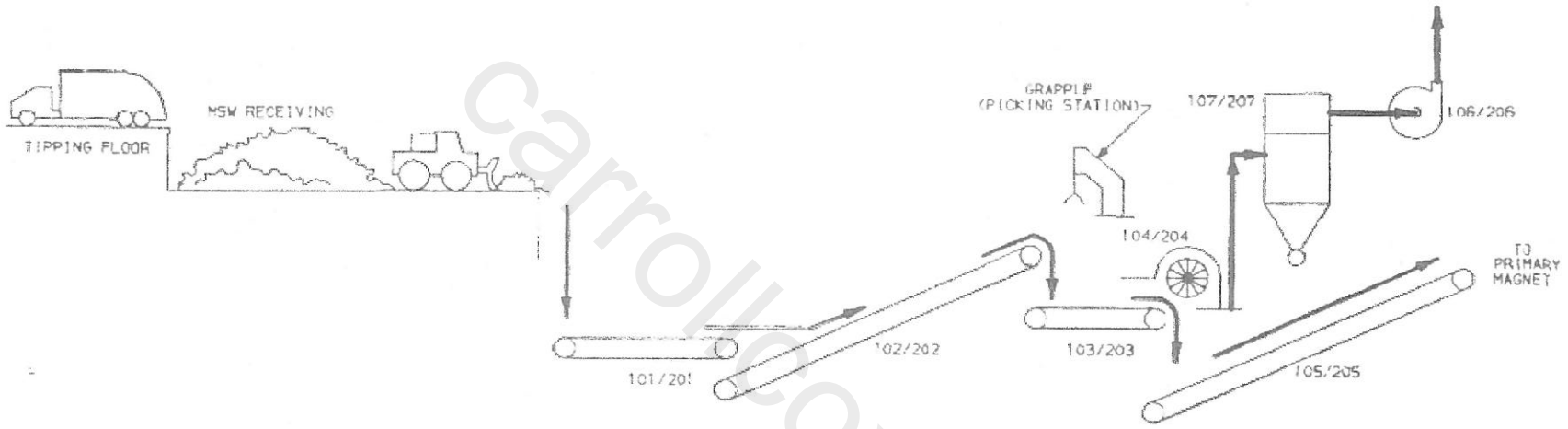
DWN BY:	CAW
CHK'D BY:	LC
DATUM:	NAD 1983
PROJECTION:	UTM 4N
SCALE:	1 inch = 200 feet

PROJECT: H-POWER Solid Waste Management Permit Application

TITLE: VEHICULAR TRAFFIC MAP

DATE:	AUGUST 2015
PROJECT NO.:	1547100009
REV. NO.:	1
FIGURE NO.:	FIGURE 8

P:\Project\3471 Projects\1547100009 - H-POWER\GIS Support\Figure 8 - Vehicular Traffic Map.mxd



101, 201	HORIZONTAL LOAD CONVEYOR
102, 202	INCLINED LOAD CONVEYOR
103, 203	DRAG FLIGHT CONVEYOR
104, 204	PRIMARY SHREDDER
105, 205	PRIMARY SHREDDER DISCHARGE CONVEYOR
106, 206	PRIMARY SHREDDER A.R.FAN
107, 207	PRIMARY BAGHOUSE

NOTE:

CLIENT:
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DWN BY: CAW
CHK'D BY: LC
DATUM:
PROJECTION:
SCALE:

PROJECT:
H-POWER Solid Waste Management Permit Application

TITLE:
PROCESS FLOW DIAGRAM 1/2

DATE: AUG 2015
PROJECT NO.: 1547100009
REV. NO.: -
FIGURE NO.: FIGURE 9

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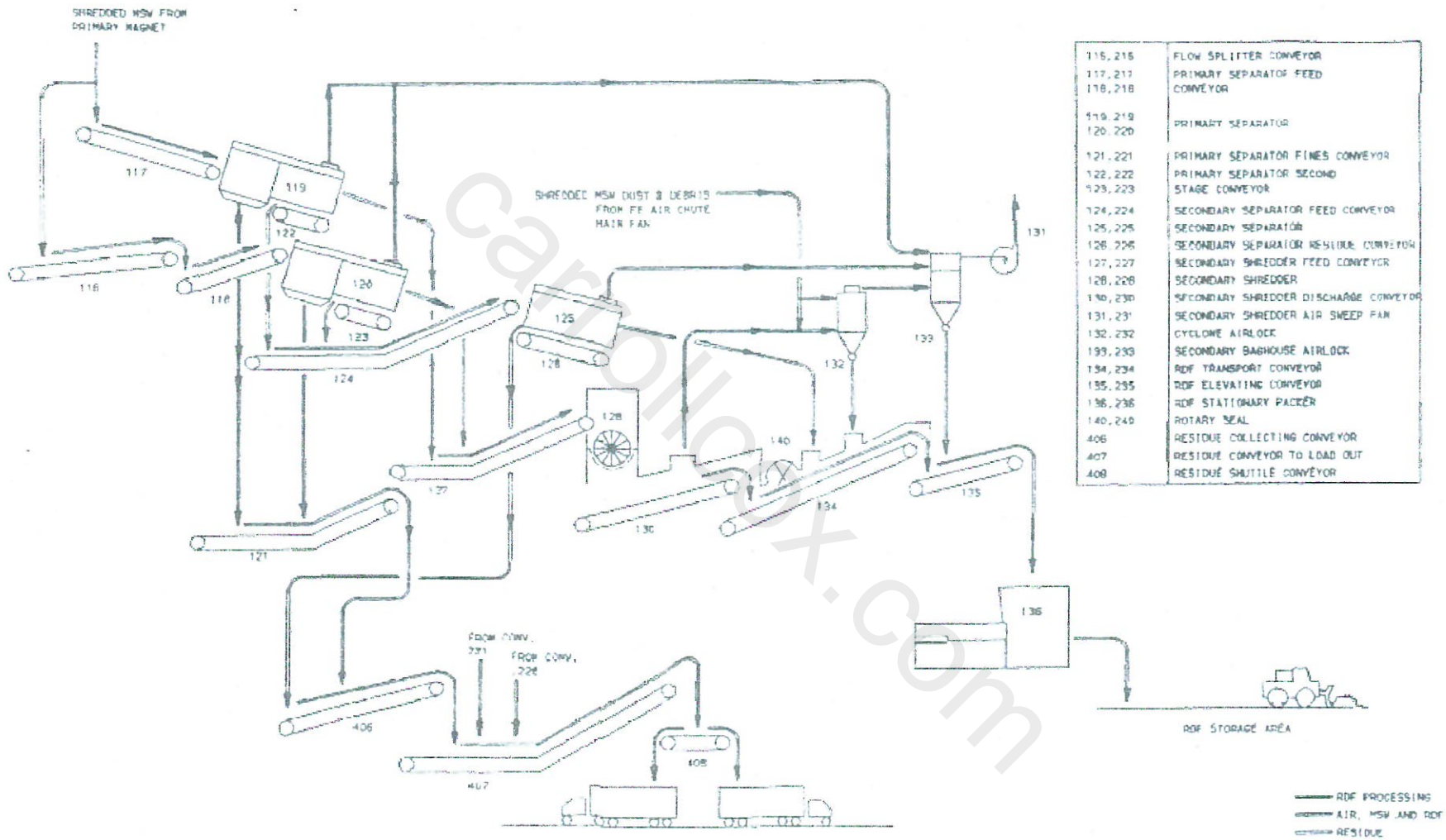

116, 216	FLOW SPLITTER CONVEYOR
117, 217	PRIMARY SEPARATOR FEED CONVEYOR
118, 218	
119, 219	PRIMARY SEPARATOR
120, 220	
121, 221	PRIMARY SEPARATOR FINES CONVEYOR
122, 222	PRIMARY SEPARATOR SECOND STAGE CONVEYOR
123, 223	
124, 224	SECONDARY SEPARATOR FEED CONVEYOR
125, 225	SECONDARY SEPARATOR
126, 226	SECONDARY SEPARATOR RESIDUE CONVEYOR
127, 227	SECONDARY SHREDDER FEED CONVEYOR
128, 228	SECONDARY SHREDDER
130, 230	SECONDARY SHREDDER DISCHARGE CONVEYOR
131, 231	SECONDARY SHREDDER AIR SWEEP FAN
132, 232	CYCLONE AIRLOCK
133, 233	SECONDARY BAGHOUSE AIRLOCK
134, 234	RDF TRANSPORT CONVEYOR
135, 235	RDF ELEVATING CONVEYOR
136, 236	RDF STATIONARY PACKER
140, 240	ROTARY SEAL
406	RESIDUE COLLECTING CONVEYOR
407	RESIDUE CONVEYOR TO LOAD OUT
408	RESIDUE SHUTTLE CONVEYOR

NOTE:

CLIENT:
Covanta Energy
91-174 Hanua Street; Kapolei, HI 96707

Amec Foster Wheeler
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Pearl City, Hawaii 96701

DWN BY: CAW
CHK'D BY: LC
DATUM:
PROJECTION:
SCALE:

PROJECT:
H-POWER Solid Waste Management Permit Application

TITLE:
PROCESS FLOW DIAGRAM 2/2

DATE: AUG 2015
PROJECT NO.: 1547100009
REV. NO.: -
FIGURE NO.: FIGURE 10

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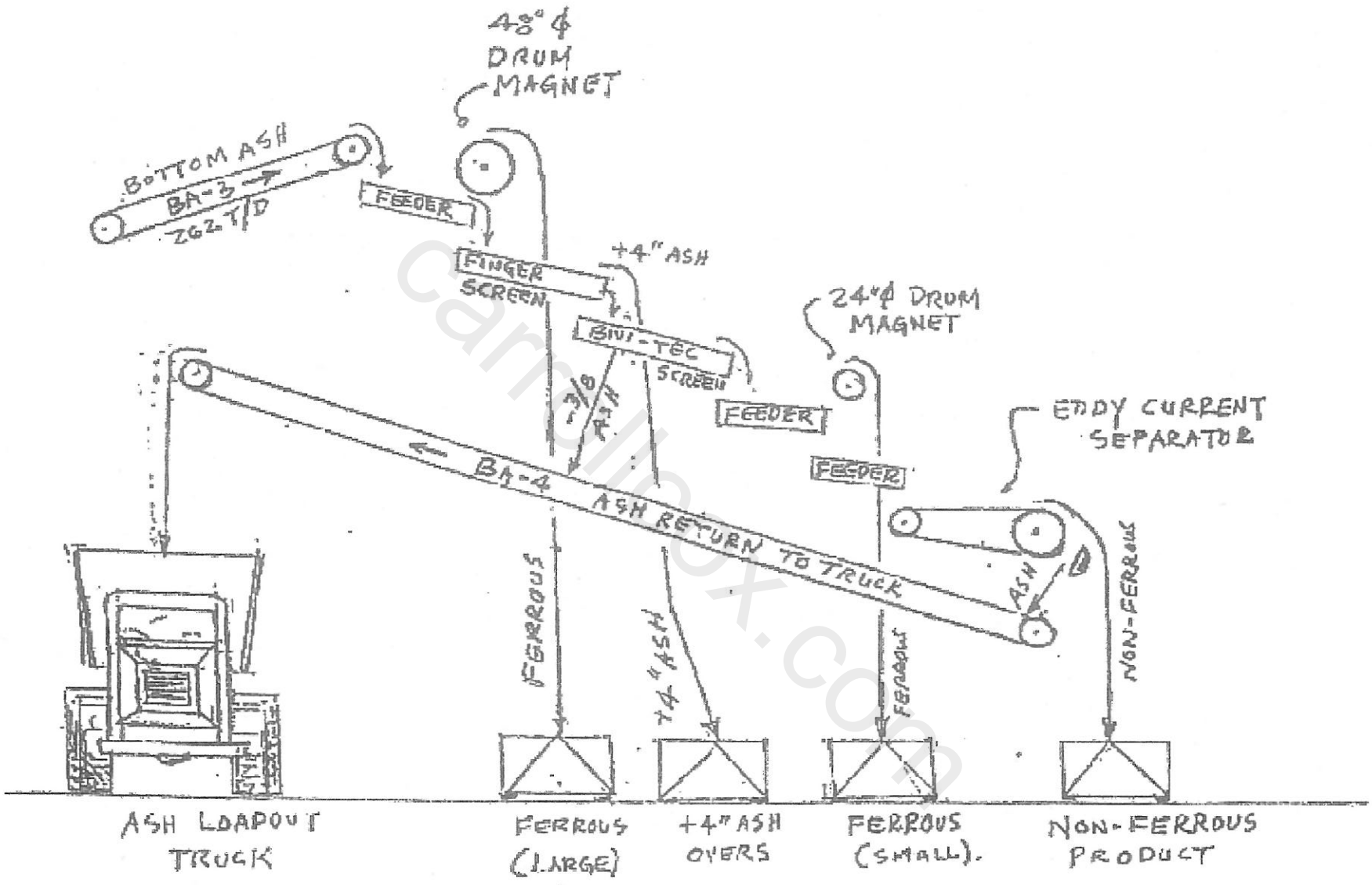

NOTE:		CLIENT: Covanta Energy 91-174 Hanua Street; Kapolei, HI 96707	DWN BY: CAW CHK'D BY: LC DATUM: PROJECTION: SCALE:	PROJECT: H-POWER Solid Waste Management Permit Application	DATE: AUG 2015 PROJECT NO.: 1547100009
		Amec Foster Wheeler Environment & Infrastructure, Inc. 98-1238 Kaahumanu St. Suite 400 Pearl City, Hawaii 96701		TITLE: BAMRS SYSTEM	REV. NO. 1 FIGURE NO. FIGURE 11

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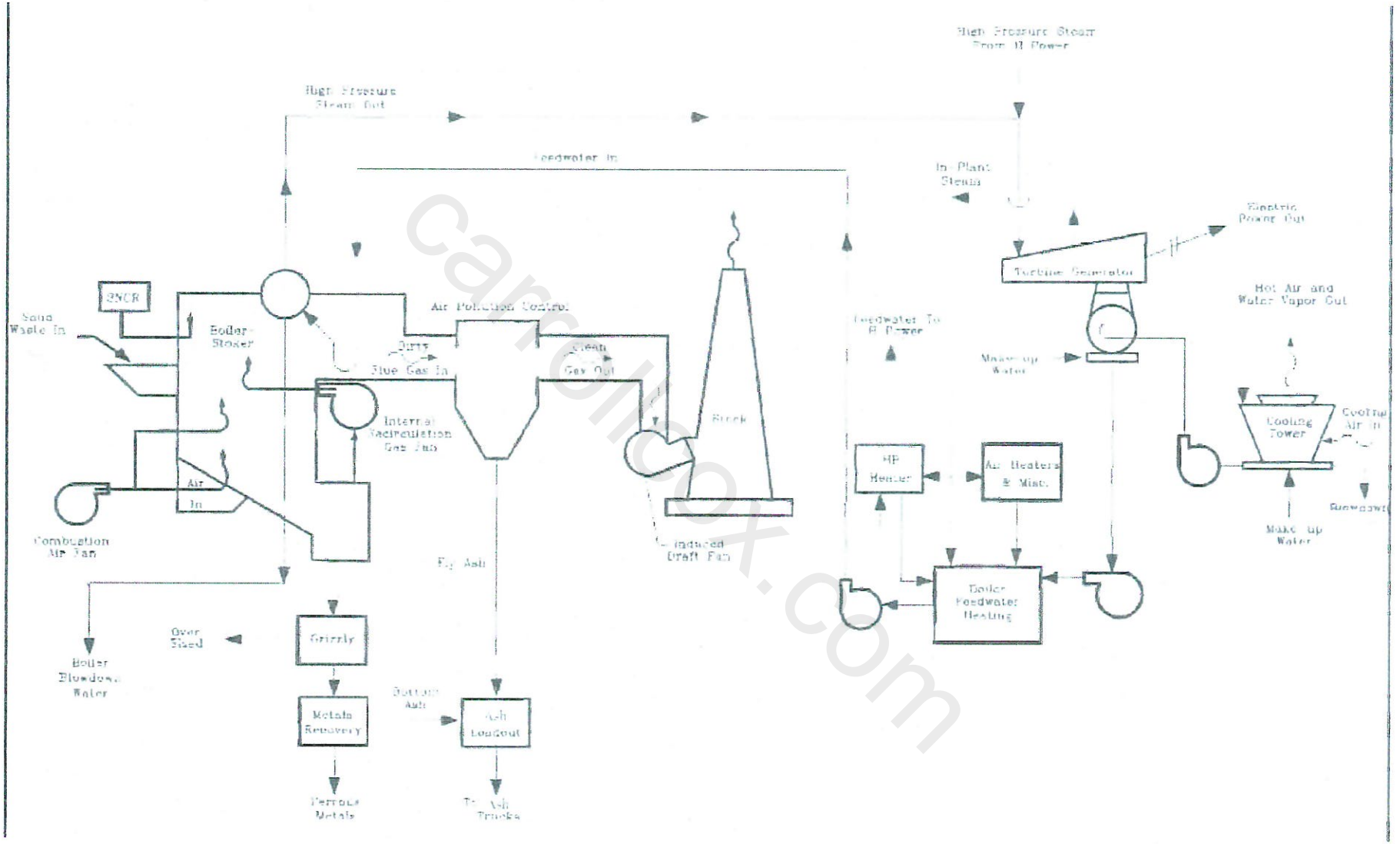

NOTE:		CLIENT: **Covanta Energy** 91-174 Hanua Street; Kapolei, HI 96707	DWN BY: CAW CHK'D BY: LC DATUM: PROJECTION: SCALE:	PROJECT: H-POWER Solid Waste Management Permit Application	DATE: AUG 2015 PROJECT NO.: 1547100009 REV. NO.: - FIGURE NO.: FIGURE 12
		Amec Foster Wheeler Environment & Infrastructure, Inc. 98-1238 Kaahumanu St. Suite 400 Pearl City, Hawaii 96701		TITLE: PROCESS FLOW AND AIR POLLUTION CONTROL SYSTEM DIAGRAM - UNIT 3	

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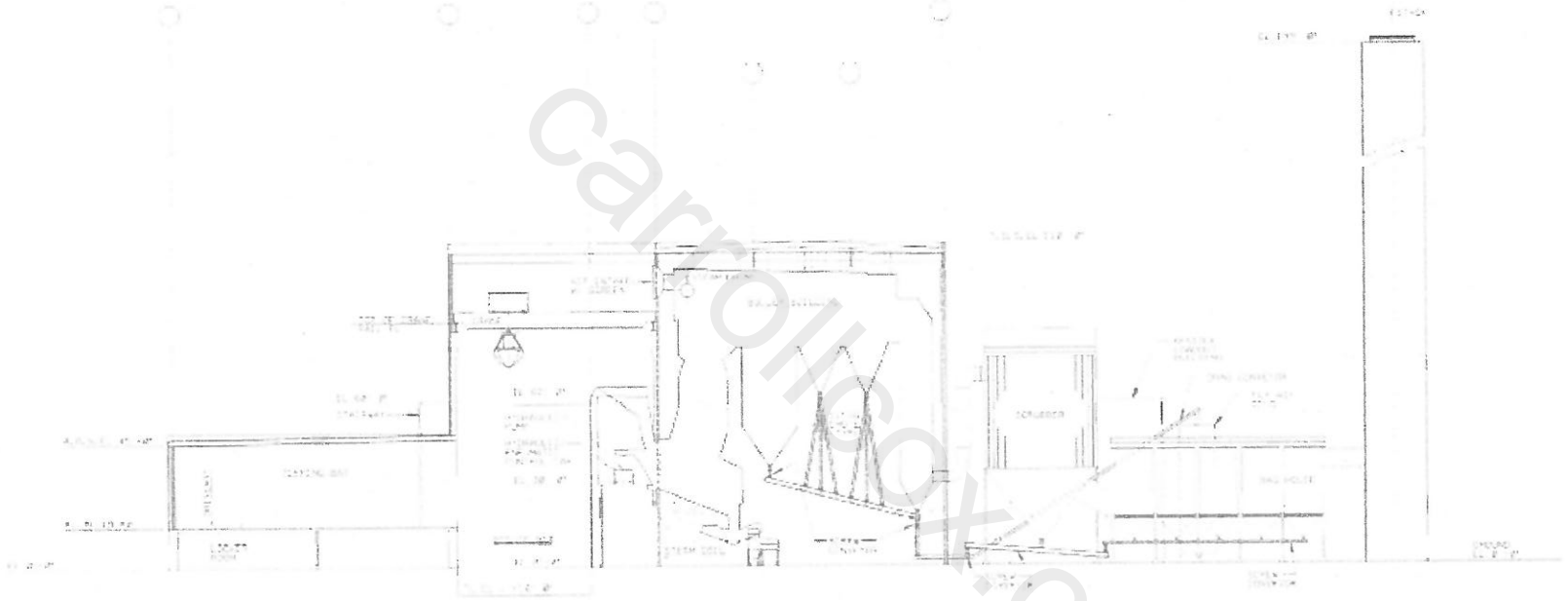

NOTE:		CLIENT: **Covanta Energy** 91-174 Hanua Street; Kapolei, HI 96707	DWN BY: CAW CHK'D BY: LC DATUM: PROJECTION: SCALE:	PROJECT: H-POWER Solid Waste Management Permit Application	DATE: AUG 2015 PROJECT NO.: 1547100009 REV. NO. - FIGURE NO.: FIGURE 13
		Amec Foster Wheeler Environment & Infrastructure, Inc. 98-1238 Kaahumanu St. Suite 400 Pearl City, Hawaii 96701		TITLE: SCHEMATIC OF AIR POLLUTION CONTROL AND GAS HANDLING - UNIT 3	

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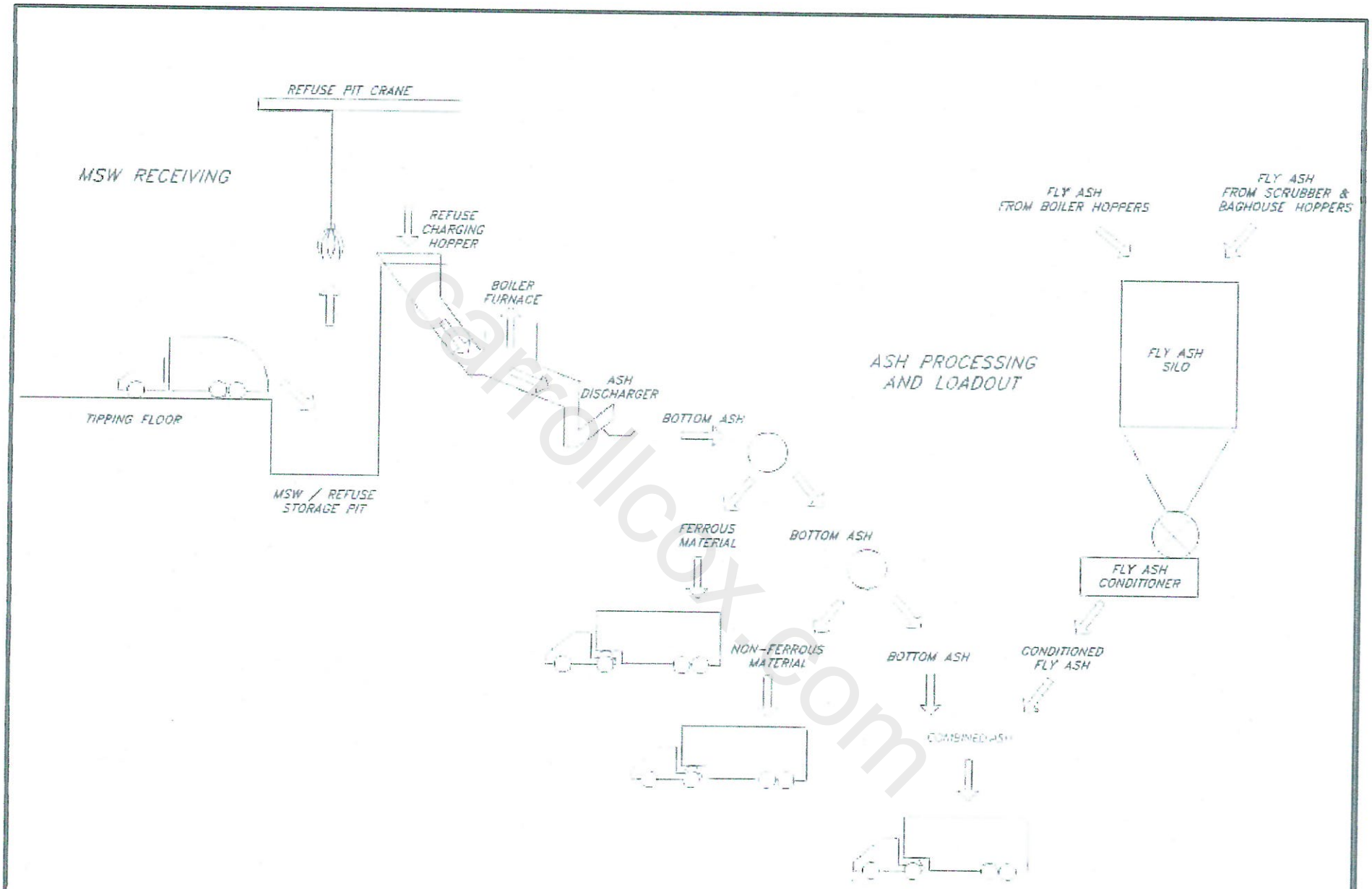

NOTE:		CLIENT: **Covanta Energy** 91-174 Hanua Street; Kapolei, HI 96707	DWN BY: CAW	PROJECT: H-POWER Solid Waste Management Permit Application	DATE: AUG 2015	
			CHK'D BY: LC		PROJECT NO.: 1547100009	
		Amec Foster Wheeler Environment & Infrastructure, Inc. 98-1238 Kaahumanu St. Suite 400 Pearl City, Hawaii 96701	DATUM:	TITLE: PROCESS FLOW DIAGRAM	REV. NO. -	
			PROJECTION:		FIGURE NO. FIGURE 14	
			SCALE:			

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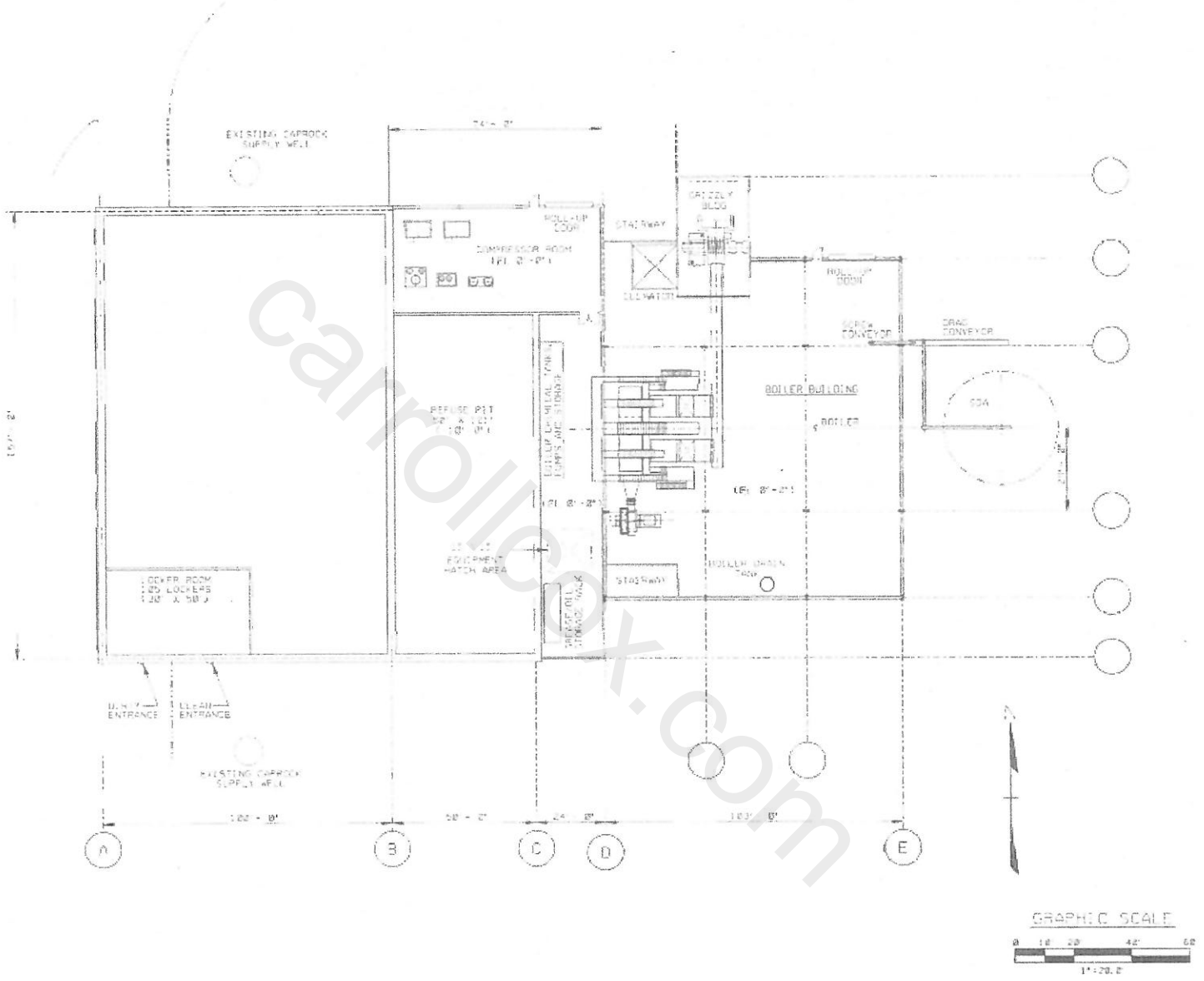

NOTE:		CLIENT: **Covanta Energy** 91-174 Hanua Street; Kapolei, HI 96707	DWN BY: CAW CHK'D BY: LC	PROJECT: H-POWER Solid Waste Management Permit Application	DATE: AUG 2015 PROJECT NO.: 1547100009
		Amec Foster Wheeler Environment & Infrastructure, Inc. 98-1238 Kaahumanu St. Suite 400 Pearl City, Hawaii 96701	DATUM: PROJECTION: SCALE:	TITLE: GROUND FLOOR PLAN	REV. NO.: - FIGURE NO.: FIGURE 15

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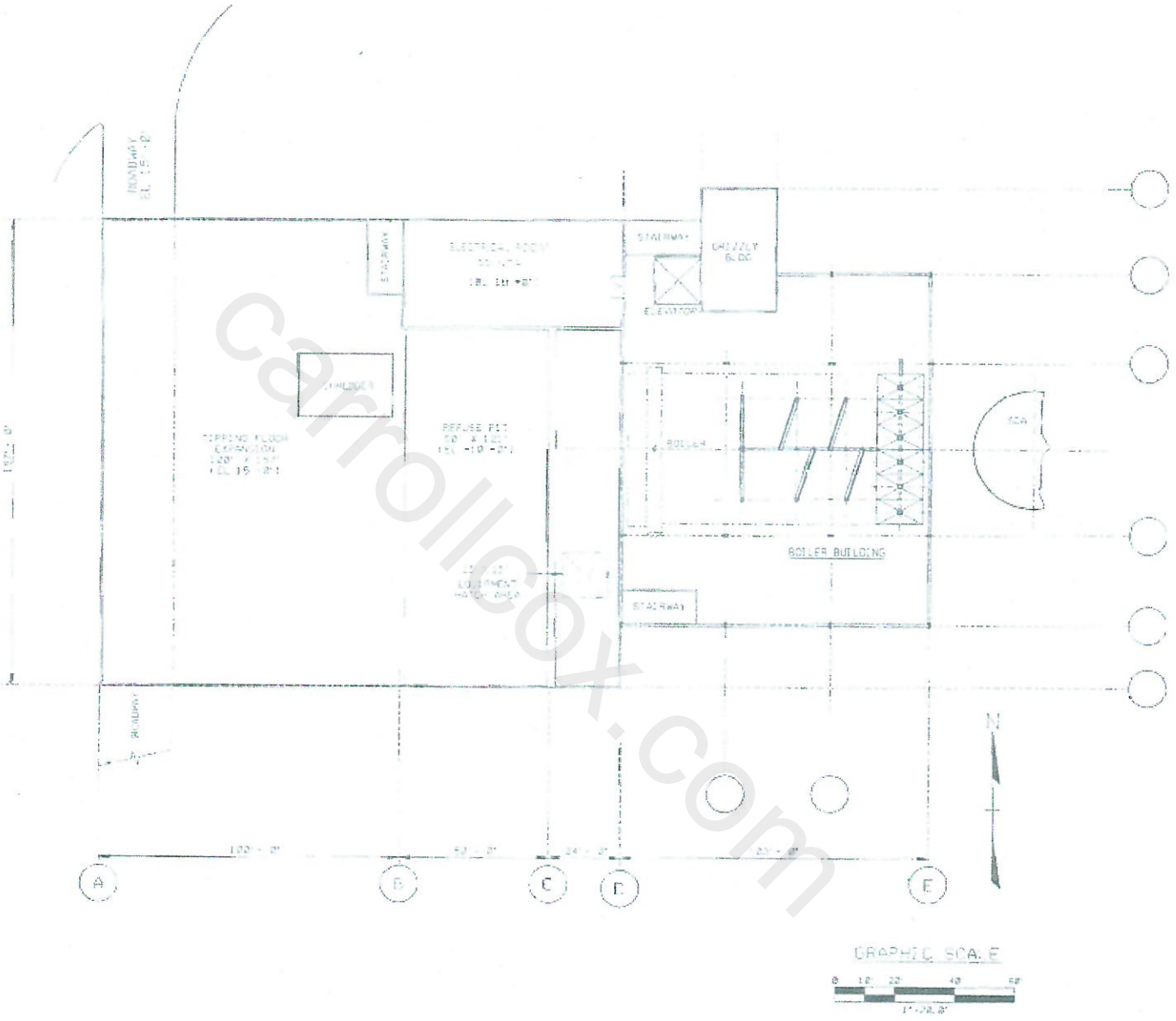

NOTE:		CLIENT: **Covanta Energy** 91-174 Hanua Street; Kapolei, HI 96707	DWN BY: CAW	PROJECT: H-POWER Solid Waste Management Permit Application	DATE: AUG 2015
			CHK'D BY: LC		PROJECT NO.: 1547100009
		Amec Foster Wheeler Environment & Infrastructure, Inc. 98-1238 Kaahumanu St. Suite 400 Pearl City, Hawaii 96701	DATUM:	TITLE: TIPPING FLOOR PLAN	REV. NO. -
			PROJECTION:		FIGURE NO.: FIGURE 16
			SCALE:		

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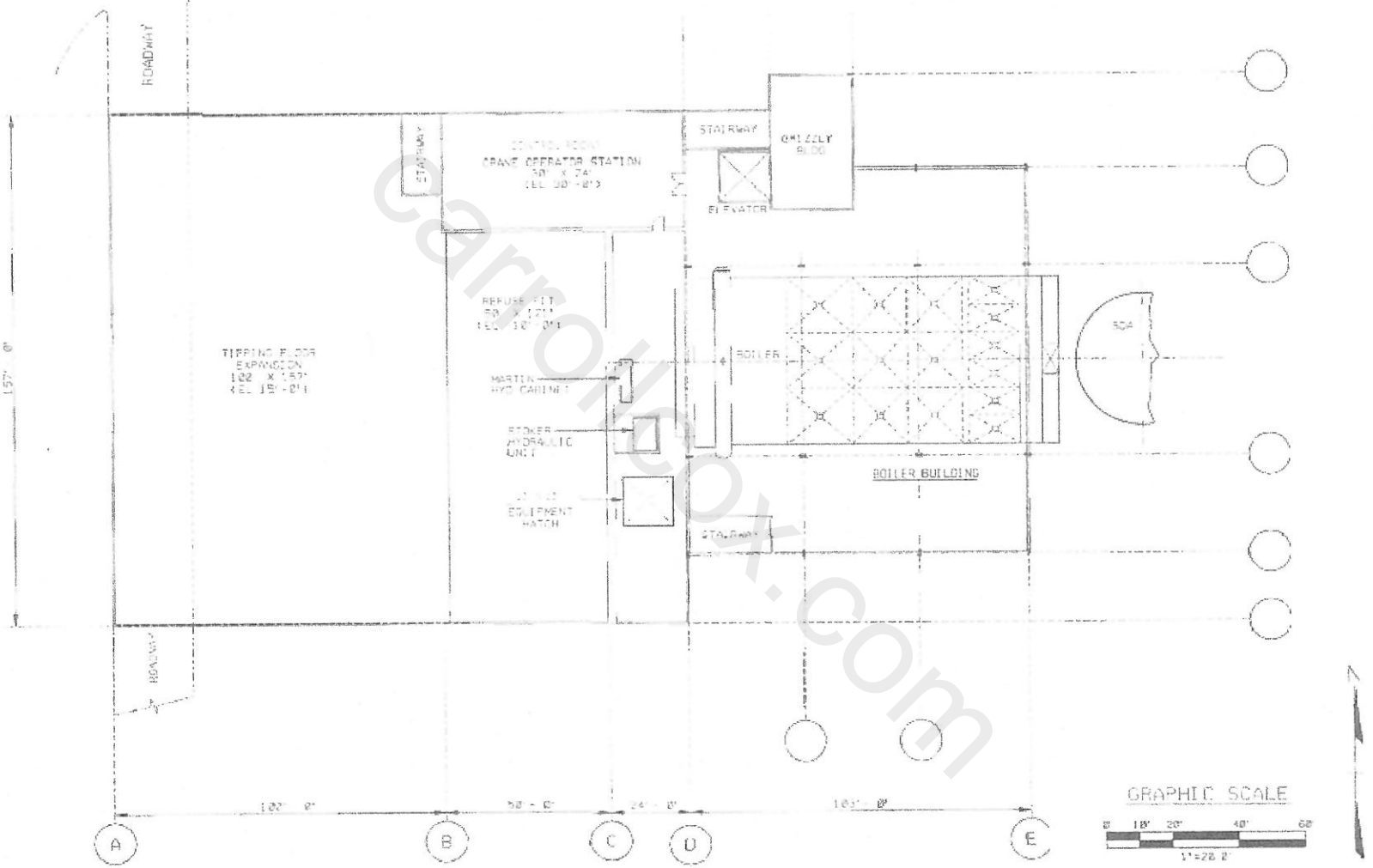

NOTE:		CLIENT: **Covanta Energy** 91-174 Hanua Street; Kapolei, HI 96707	DWN BY: CAW	PROJECT: H-POWER Solid Waste Management Permit Application	DATE: AUG 2015	
			CHK'D BY: LC		PROJECT NO.: 1547100009	
		Amec Foster Wheeler Environment & Infrastructure, Inc. 98-1238 Kaahumanu St. Suite 400 Pearl City, Hawaii 96701	DATUM:	TITLE: FIRING FLOOR PLAN	REV. NO. -	
			PROJECTION:		FIGURE NO.: FIGURE 17	
			SCALE:			

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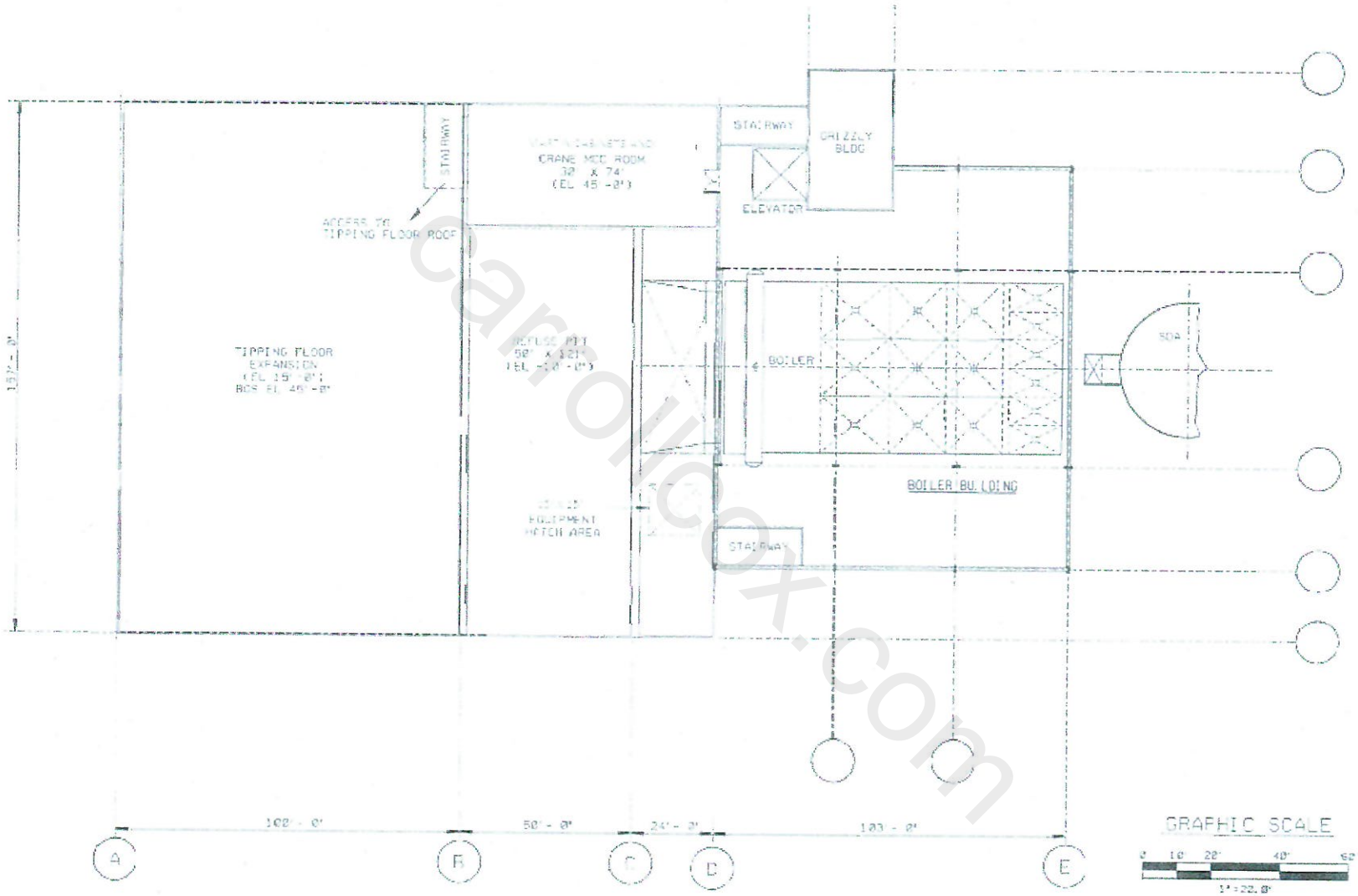

NOTE:		CLIENT: Covanta Energy 91-174 Hanua Street; Kapolei, HI 96707	DWN BY: CAW CHK'D BY: LC DATUM: PROJECTION: SCALE:	PROJECT: H-POWER Solid Waste Management Permit Application	DATE: AUG 2015 PROJECT NO.: 1547100009 REV. NO. - FIGURE NO.: FIGURE 18
		Amec Foster Wheeler Environment & Infrastructure, Inc. 98-1238 Kaahumanu St. Suite 400 Pearl City, Hawaii 96701		TITLE: FLOOR PLAN 45' - 0"	

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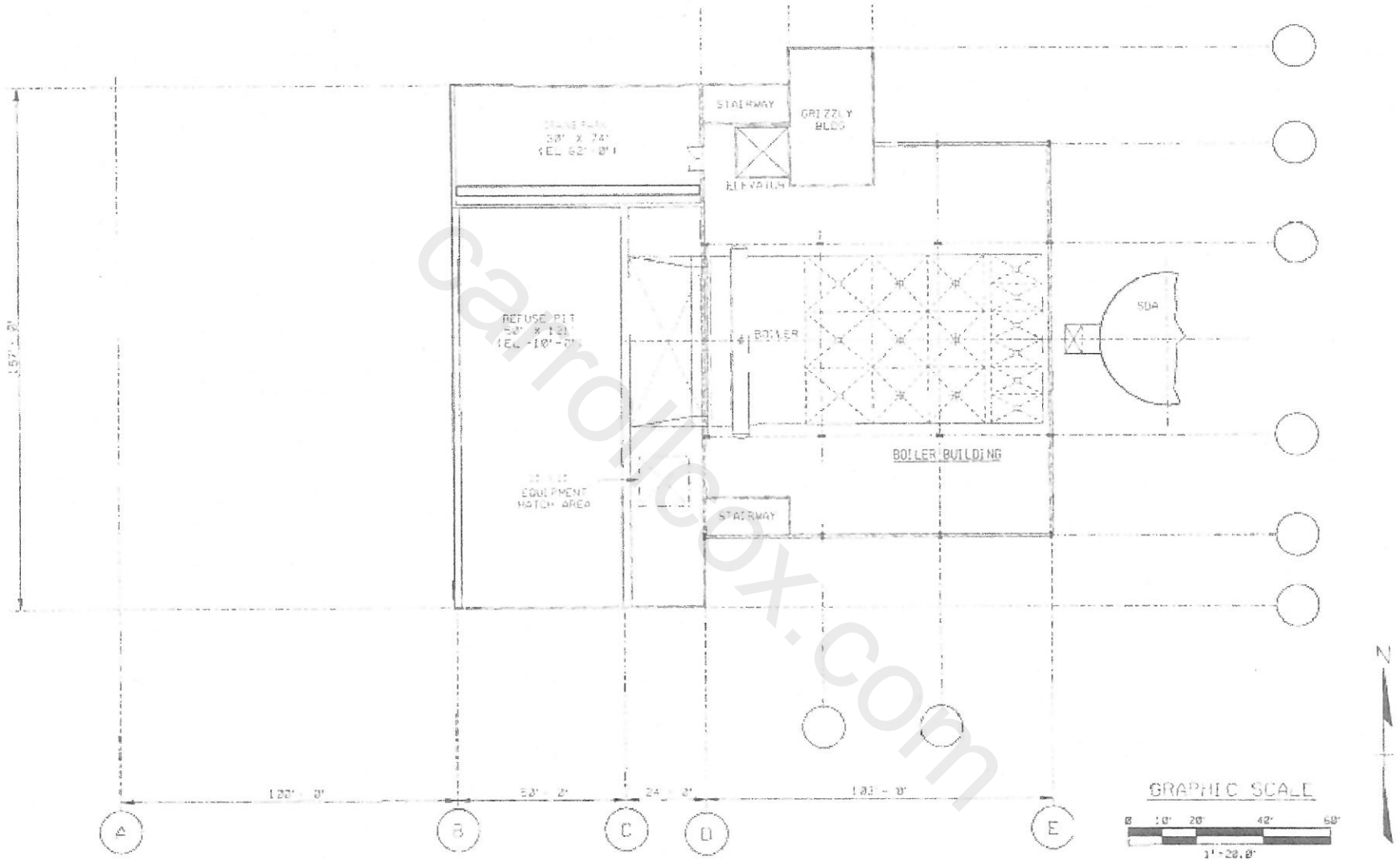

NOTE:		CLIENT: **Covanta Energy** 91-174 Hanua Street; Kapolei, HI 96707	DWN BY: CAW	PROJECT: H-POWER Solid Waste Management Permit Application	DATE: AUG 2015
			CHK'D BY: LC		PROJECT NO.: 1547100009
		Amec Foster Wheeler Environment & Infrastructure, Inc. 98-1238 Kaahumanu St. Suite 400 Pearl City, Hawaii 96701	DATUM:	TITLE: CHARGING FLOOR PLAN	REV. NO.: -
			PROJECTION:		FIGURE NO.: FIGURE 19
			SCALE:		

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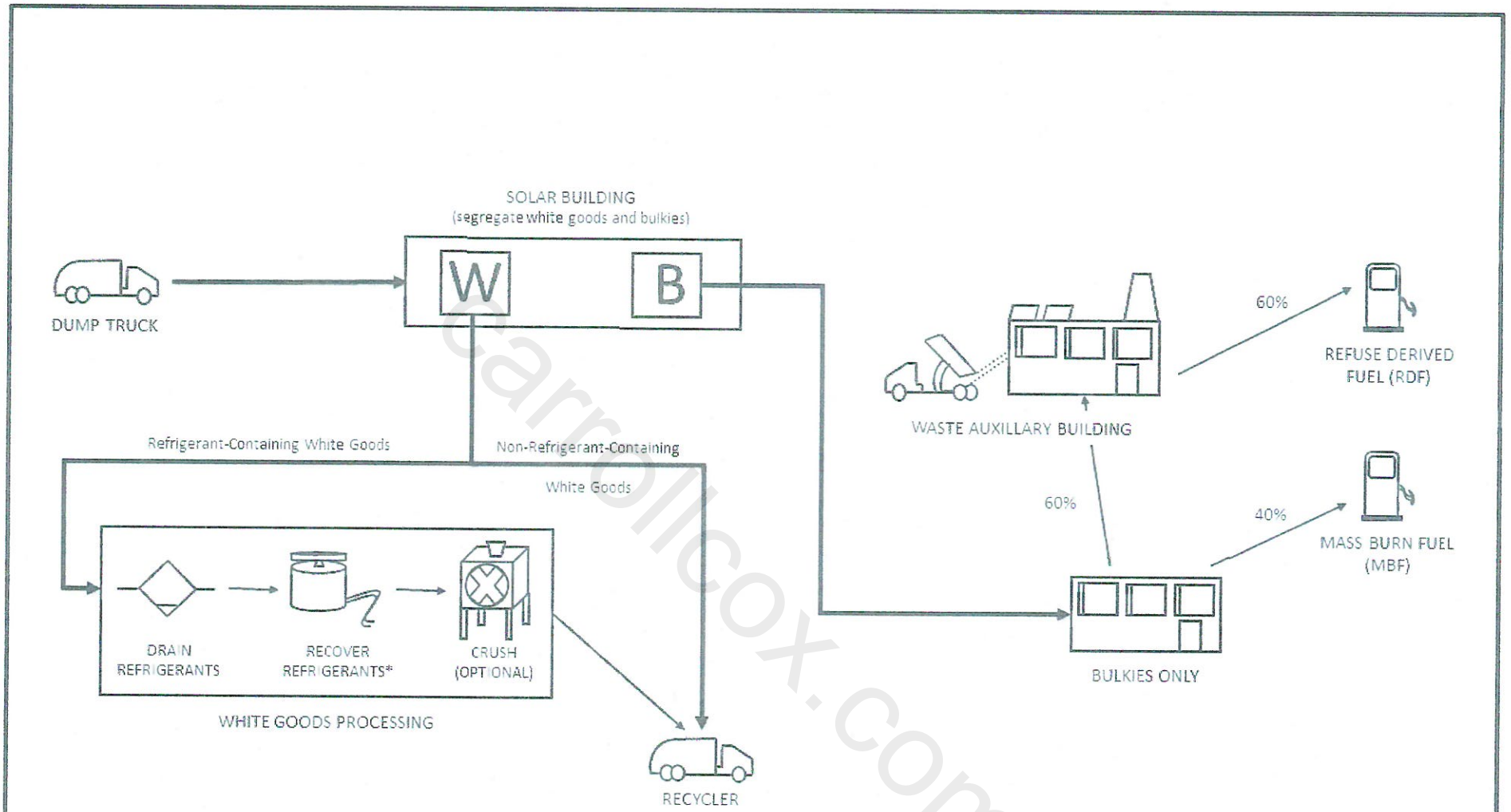

NOTE:
* Refer to equipment specification sheet provided in the Operation and Maintenance Plan (OMP)

CLIENT: **Covanta Energy**
91-174 Hanua Street; Kapolei, HI 96707

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98-1238 Kaahumanu St. Suite 400
Pearl City, Hawaii 96701

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DWN BY: CAW
CHK'D BY: LC
DATUM:
PROJECTION:
SCALE:

PROJECT: H-POWER Solid Waste Management Permit Application

TITLE: WHITE GOODS FLOW DIAGRAM

DATE: AUG 2015
PROJECT NO.: 1547100009
REV. NO. -
FIGURE NO.: FIGURE 20

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COVANTA HONOLULU RESOURCE RECOVERY VENTURE'S OPERATION AND MAINTENANCE PLAN

The following Operation and Maintenance Plan addresses the topics required in Appendix P-3 of Permit Application for Solid Waste Management Facility for Covanta Honolulu Resource Recovery Venture's (CHRRV's) HPOWER facility in Kapolei, Hawaii. Each topic area called out in the permit application is addressed below.

I. Identification and Qualifications

The Operators in the RDF Waste Processing Department for Units 1 and 2 as well as the operators in the new Mass Burn unit (MBU) Operations Department for Unit 3 are trained for their positions through on-the-job training. The Shift Supervisor normally assigns a more senior operator to mentor the new operator. The new Operator is evaluated during their initial probation period to ensure that the new operator is fulfilling the job requirements.

Vehicle operator training such as forklift training is outsourced for individuals who do not already possess the appropriate certification. As vacancies occur for higher positions, the internal applicants are tested and undergo a rigorous interview process to test their knowledge of their current position and of the position for which they are applying.

The RDF Waste Processing Supervisors have more than 10 years of experience working at the facility. These individuals have worked their way up from the entry level technician to the position they currently hold. The RDF Waste Processing Department Manager also has 10 plus years of service and has worked his/her way up through the department.

The Covered Source Permit requires at least one of the following personnel is always on duty for operating the RDF MWC boilers: a fully certified chief facility operator, a fully certified shift supervisor or a provisionally certified control room operator. The facility manager, chief engineer, and shift supervisors are all ASME certified. Supervisors are also sent to our Corporation Operations training program. The MBU Operations Supervisors will also have appropriate experience working on this type of system through a combination of work experience, off-site training courses, Covanta training courses, and working details at mass burn facilities. Supervisors will have to pass ASME examinations, per EPA MACT regulations.

II. General Description of the Facility

The primary function of the existing Facility is to provide disposal of municipal solid waste (MSW). The overall processing capacity for the whole facility is 2900 tons per day. The plant, comprised of an MSW processing plant which produces Refuse Derived Fuel (RDF) and two 854 ton per day RDF combustors, and processes approximately 600,000 tons of MSW per year[1], reducing the volume of refuse that goes to the landfill by 90%. Additionally, HPOWER annually recovers 20,000 tons of metals, such as aluminum and steel from the waste stream. HPOWER combusts the RDF to create steam that drives a turbine generator which then produces electricity. The electricity generated by this waste-to-energy plant is distributed to customers by Hawaiian Electric Company ("HECO"). The proposed expansion consists of the addition to the existing HPOWER Facility ("Facility") of a 900 ton per day ("TPD") mass burn

[1] Based on a 10-year average.

waterwall municipal waste combustor (MWC) unit, its associated air pollution control equipment, and all the equipment required to tie the addition into the existing Facility, and a new turbine generator which will provide an additional source of renewable energy to the City and County of Honolulu.

The existing Facility has the ability to receive and store "Acceptable Municipal Solid Waste" (AMSW), separate and remove noncombustible constituents such as glass, sand and dirt to be landfilled, and separate ferrous and non-ferrous metals for recycling. The existing facility also has the ability to produce and store RDF and burn the RDF on demand in industrial boilers to produce steam for electrical generation and distribution to the Hawaiian Electric Company. The proposed expansion to the facility will also separate and remove noncombustible constituents and recyclable metals. The Facility's operations are divided into two categories: the existing operation (Units 1 and 2) and the MBU expansion (Unit 3).

The MBU Expansion consists of the addition to the Facility of a 900 TPD mass-burn waterwall MWC unit, its associated air pollution control equipment, and all the equipment required to tie the addition into the existing HPOWER Facility. It includes modifications and additions to the existing waste feed system and ash handling and other utility systems necessary for the new equipment. A new turbine generator, in addition to the existing turbine generator, will be installed.

The new MWC (Unit 3) will consist of a mass burn waterwall municipal waste combustor unit, fuel feeding system, state-of-the-art reverse reciprocating grate, integrated furnace/boiler, and the most advanced air pollution control system used on these plants in this country. The air pollution control system consists of a semi-dry scrubber, fabric filter baghouse, carbon injection system, selective non-catalytic reduction system in combination with Covanta's proprietary control technology called Very Low NOx system (VLN™), and associated ash handling systems. The new unit is expected to generate 230-240 tons (wet weight) of ash per day. To provide for adequate cooling water, the proposed project will increase the caprock water supply permit limit from 2.26 million gallons per day (MGPD) to 3.34 MGPD and the caprock water injection permit limit from 1.2 MGPD to 2.7 MGPD. HPOWER's cooling tower basin will be expanded by the addition of two new cooling tower cells.

The average energy content of the acceptable MSW is expected to be not greater than 6,400 BTU/lb or less than 3,535 BTU/lb. The existing RFD Processing Plant will normally be operated two or three eight hour shifts on week days and normally one shift on Saturdays. The Energy Plants, consisting of two Combustion Engineering, Inc. VU-40 spreader-stoker boilers in the existing boiler building, a new state-of-the-art Martin reverse reciprocating grate, boiler in a new boiler building, a steam turbine generator in the existing turbine building, a new steam turbine generator in a new turbine building, and auxiliaries will operate 24 hours a day, seven days a week, two 12-hour shifts a day.

The facility Maintenance Mechanics and Instrumentation/Electrical Technicians provide 24-hour support to both the existing and new facility in the case of an emergency repair. General and preventive maintenance is conducted on the equipment on a routine basis. The MAXIMO computer maintenance tracking system is used to track preventive maintenance requirements. In addition, outside contractors may be hired to augment the facility maintenance efforts.

During emergencies, the Facility Manager or designee will determine if the facility will continue operating according to the Facility's Emergency Action Plan. Should the health and safety of the employees be jeopardy, the facility will cease operations. Emergency professionals such as the police or fire department may also determine that the facility should temporarily cease operations until the emergency situation has been resolved. Emergency professionals will be called when the situation dictates the need for their expertise.

The Solar Building and associated white goods refrigerant reclamation operations are further outlined in the Addendum titled "OMP for Processing White Goods."

Acts of God, severe weather or other unpredicted occurrences may cause the facility to temporarily cease operations. In these cases, the facility will assess the situation and determine if operations can be safely resumed. If the operations can resume safely, the facility will take steps to resume operations. Should there be damage to the equipment, the facility will assess the damage and make preparations for expedient repair of the equipment.

Contingency Plan

The frequency of a total system shutdown is considered to be extremely low due to the storage capability and the redundancy of systems provided for in the Facility design. Should this event occur and last for an extended period of time, waste will be directed to and disposed of in a sanitary landfill.

The contingency plan for interruption of Facility operation provides for continuous, uninterrupted disposal of the island's municipal solid waste. The plant has several back-up options as outlined below.

Acceptable Waste Storage

During normal operations for RDF processing, waste will be received and processed into RDF within 1-2 days. During an emergency, three days' collection of MSW can be held in current MSW storage area without any processing.

The new MSW pit for MBU Unit #3 is designed to hold three days' collection of MSW.

Process Redundancy

The current RDF Processing Plant is equipped with two process lines. During normal conditions, both lines will be operated two shifts per day to process the waste received in each day's delivery schedule. System redundancy consists of the reserve processing line capability to operate three shifts per day and to operate on weekends, as required, to meet emergency conditions.

The MBU will add a separate storage pit which has the capacity to hold three days' collection of MSW and accept MSW 24 hours a day in emergency.

MSW/RDF Storage - Waste Processing Area

The MBU and RDF storage capacity of the Facility will also reduce the impact of process and

boiler side interruptions on day-to-day operation of the plant. The MBU and RDF storage area is designed to store three days of MSW and/or RDF. Material in storage will provide a stockpile of waste materials to allow continuous operation of the boiler during weekends when MSW deliveries cease. In addition, the stored material will buffer the impact of downtime related to waste delivery or front-end processing by permitting continued receipt of waste and operation of the front-end system when short-term boiler outages occur.

The new waste auxiliary building will be a covered receiving area (Waste Auxiliary Building) which includes a Bulky waste shredder and metals recovery equipment. The Waste Auxiliary Building will also include crane/grapple, two concrete bays bunkers with a capacity of 130 cubic yards per bay bunker.

Boiler System Redundancy

The boiler system currently includes two RDF boilers, and the expansion will include the addition of a third MBU, each with the capacity to burn more than is required to handle all of the incoming waste. Each of the boilers is also equipped to burn diesel or bio-diesel fuel for start-up, shutdown, or process stabilization as needed.

III. Description of Sources and Types of Waste

Acceptable MSW (AMSW) is delivered to the Facility by transfer trailer, packer trucks, City and County route collection vehicles, and private vehicles. Waste delivered to the Facility is essentially limited to residential, institutional, commercial, military and light industrial solid waste or that fraction which might normally be handled efficiently at a municipal solid waste energy recovery facility. All delivery vehicles for the RDF units are weighed into the Facility on a 60-ton, 70-foot capacity receiving scale located adjacent to the central scale house. A second scale of equal capacity is utilized for determining vehicle tare weights, as required, and for weighing recovered metals, RDF processing residue, and ash leaving the site. A fully furnished and equipped weigh station with one additional seventy-foot (70') long truck scale will be included with the MBU Expansion.

All vehicles delivering waste to the Facility are identified by vehicle license number. A computer database contains specific information required for billing purposes. The weighmaster inputs the vehicle identification which initiates the weighment and automatic billing systems. During a typical week approximately 12,000 tons of MSW is received at the facility. After the expansion, MSW deliveries are expected to reach approximately 18,000 tons per week.

From the central RDF scale house, incoming trucks are currently directed to one of the two receiving locations in the Processing Plant. In general, route collection vehicles and packer trucks are directed to the tipping locations along the elevated dumping platform of the receiving and storage area. Transfer trailers are directed to the ground level dumping area. Typically a spotter directs trucks to the appropriate locations for tipping. The MBU expansion will include a new elevated roadway leading to a new tipping floor located adjacent to the existing MSW feed and storage area. Thus there will be a total of three receiving locations at the facility.

At the central RDF scale house, the vehicles pass between two radiation detectors to monitor for radioactive materials. In the event the alarms are set off, the vehicle is moved to an area where exposure to personnel is minimized. The Hawaii State Department of Health (HDOH), Indoor and Radiological Health Branch is notified after facility personnel verify the concentration of the

material. The HDOH representative determines how to properly handle and dispose of this waste. At no time will CHRRV accept any radioactive waste for processing.

The AMSW is stockpiled in the MSW storage areas as it is received and fed out of storage for processing. A large crawler-dozer stockpiles the AMSW. Front end loaders retrieve the waste for RDF process feed. The MSW receiving and the RDF storage areas are designed to hold approximately three days storage of AMSW.

~~White goods, discarded stoves, refrigerators and other appliances and~~ Bulky items that cannot be processed, are occasionally received with AMSW. These unacceptable items are retrieved and placed on the west wall of the MSW receiving room. These metal products are taken to the metal recycler for recycling. There are some non-MSW wastes that are processed by direct injection for combustion at the RDF facility. Typical non-MSW wastes include: contraband confiscated by the local law enforcement agencies, expired pharmaceutical supplies and military classified documents.

Nonprocessible wastes and items mixed with incoming AMSW that cannot be processed are pushed aside by loader operators and, when time permits, pushed to the bulky waste loadout area. If combustible, it will be transferred to the bulky waste shredder in the Unit 3 Mass Burn receiving area. If not combustible, it will transferred to a recycler or the landfill.

In the RDF facility, the AMSW is conveyed past an inspection/picking station before being fed to shredders. Items that cannot be processed that remain in the waste stream at this point are removed by the grapples at the inspection/picking station and dropped through hoppers into trailers positioned below. When full, the trailers are hauled to a landfill.

Regulated hazardous waste as defined in 40 CFR 261 or Hawaii Administrative Rules (HAR), Title 11 Chapter 261, will not knowingly be accepted at the Facility. The Facility prohibits the delivery of these types of waste and will reject and remove any waste not meeting the specification of AMSW.

The following is the definition of Unacceptable Waste (UW):

> "Unacceptable Waste" includes large castings, transmissions, rear ends, springs, fenders or other major parts of automobiles, motorcycles, other vehicles or marine vessels, explosives, pathological or biological waste, hazardous chemicals, radioactive materials, large quantities of sulfur-containing materials, large tree branches or trunks, machinery (other than ~~small~~ household appliances), liquid wastes, dirt, concrete, other non-burnable construction materials or debris and regulated hazardous waste of all kinds, including but not limited to, cleaning fluids, crankcase oils, cutting oils, paints, acids and poisons or other materials including those regulated under Federal and State rules and regulations.

The following is the definition of Acceptable Waste (AW):

> "Acceptable Waste" shall mean that garbage, trash, rubbish and refuse normally disposed of by and collection from residential, commercial, military, institutional and industrial establishments within the City, provided, however, that the term shall not include wastes in quantities and concentrations which require special handling in their collection and/or processing and disposal such as bulk items, junked automobiles, waste oil and other items of Unacceptable Waste as herein defined. Acceptable Waste may include leaves, twigs,

grass and plant cuttings, branches or tree trunks not in excess of five feet long or larger than nine inches in diameter, paper, plastics, ferrous and non-ferrous metals, glass, discarded personal property such as bicycles and baby carriages and other constituents that normally appear in household refuse, green waste, sewage sludge from waste water treatment facilities, tires and certain wastes which are difficult to process such as leather items, but which can be processed in small quantities when mixed with other Acceptable Waste provided large quantities of such wastes are not included within any truckload.

Mechanically Dewatered Sewage Sludge is an acceptable waste. An addendum has been attached entitled, "HPOWER OMP for the Handling, Storage, and Combustion of Mechanically Dewatered Sewage Sludge (Bio-Solids)".

White goods are an acceptable waste, only for the purposes of refrigerant reclamation. White goods will be evacuated in accordance with the Section 608, Refrigerant Recovery Rules. An addendum has been attached to this OMP entitled, "OMP for Processing of White Goods."

Procedures to Prevent Unacceptable Waste from Entering the Facility

All arriving solid waste vehicles are weighed at an inbound scale. At these scales, a clearly visible notice is posted that Unacceptable and Hazardous Waste is prohibited, together with a clear warning of potential hauler bans and other legal penalties for violators.

Although all vehicles are subject to inspection, priority for manual screening will be given to:

- Those haulers known to serve industrial areas;
- Those haulers whose service areas are not well known;
- Front-end loaders and roll-off drop boxes; and
- Packer trucks with commercial pick-ups.

The screening procedures used at the facility include the following activities:

- Visual inspection of trucks by the RDF Tipping Floor Attendant and the Mass Burn Tipping Floor Attendant, for unusual looking loads;
- Routine visual inspection by tipping floor and mobile equipment personnel of material in the refuse vehicles during unloading;
- Visual inspection of the materials on the tipping floor and the pit of the Mass Burn Unit; and
- Selection of vehicles to be screened as part of the spot-check portion of the screening program outlined below is to be done both on a judgmental basis using criteria mentioned above, and on a random load basis.

All personnel directly involved in the handling of incoming refuse (tipping floor personnel, front-end loader operator, Dozer operator, and crane operator for the MBU) will be trained to visually identify, and instructed on how to deal with, UW and suspected Hazardous Wastes.

Whenever facility staff identifies a hauler with Unacceptable or suspected Hazardous Waste or screen a hauler for possible Unacceptable or Hazardous Waste reports are to be completed, and notification letters will be sent.

If the tipping floor personnel discover Unacceptable or suspected Hazardous Waste in an incoming truck, either at or before the truck reaches tipping floor, the driver is not permitted to discharge his load and will be directed to leave the site. The attempt to deliver is recorded and repeat attempts can lead to disbarment from the facility.

Operations staff routinely visually screen the refuse being unloaded, looking for Unacceptable Waste and other prohibited materials, including drums/containers possibly containing unused or waste chemicals, large numbers of filled sacks, or substantial quantities of soil or powdery debris.

If the tipping floor personnel or the mobile equipment operator observe Unacceptable or suspected Hazardous Waste being discharged, that hauler is not be permitted to leave the facility. The vehicle will be re-loaded and the hauler is required to remove the Unacceptable or suspected Hazardous Waste from the facility.

If the crane operator in Unit 3 observes Unacceptable or suspected Hazardous Waste in the pit, it will be removed and placed on the tipping floor.

If the Unacceptable or suspected Hazardous Waste is observed, but the delivery vehicle exits the tipping floor before it can be stopped, the Scalehouse Operator will be notified and every attempt will be made to identify and halt the vehicle before it exits the facility. The hauler will then be required to re-load the waste and remove it from the facility. If the Waste is Unacceptable, it should be disposed of by the hauler's company.

Loads are selected for inspection on a random basis. Loads selected for inspection are directed to a designated screening area where an unloading spot is provided. At the screening area, the load is discharged under the scrutiny of the tipping floor personnel. If suspect materials are spotted, but are not readily accessible, the front-end loader operator will spread the refuse tipped onto the floor using the loader bucket.

If Unacceptable or suspected Hazardous Waste is found, the hauler will be required to remove it from the facility. After conclusion of screening, Acceptable Waste will be moved to the storage area/pit by the front-end loader. If no unacceptable materials are located, haulers will be allowed to leave as soon as practical after the truck is emptied before exiting the tipping floor, unless in the reasonable judgment of the Company additional screening is warranted, in which case the hauler must wait until the screening is completed.

In order to ensure safe handling of waste during screening and inspection, appropriate personal protective gear, fire fighting equipment, and clean-up equipment are stored near the tipping floor. Appropriate materials needed to isolate any prohibited waste (rope, pylons, etc.) are stored in the warehouse.

Whenever a vehicle is screened, a waste screening report is completed by the Waste Processing Facility (WPF) Shift Supervisor or the Mass Burn Operations Supervisor. If there is a violation of a facility rule, the driver of the offending vehicle will be immediately notified orally and a Notice of Violation may be issued. Within 48 hours of such oral notice, the Notice of Violation will be sent to the hauler as formal notice of the infraction, citing the date, time, and vehicle identification number and the nature of the violation. A copy of the waste screening report will be attached to the Notice of Violation, if appropriate. When the violation is committed

by a designated hauler, a copy of the letter will be sent to the County. Haulers will be informed that infractions may cause suspension from the facility.

Whenever suspected Hazardous Waste is found and the hauler identified and it is safely possible, the hauler will be required to re-load and leave the facility. If it is not possible to reload the vehicle safely, subject to local laws and regulations, municipal authorities will be requested to impound the vehicle until the hauler can arrange for and actually remove the Hazardous Waste. A Notice of Violation will be sent by the Company to the owner of the vehicle; and, if the violation is committed by a Designated Hauler; a duplicate copy will be sent to the County. It is the responsibility of the hauler to arrange for removal and disposal of Hazardous Waste in compliance with the law.

When haulers cannot be identified and the Company is required to handle suspected Hazardous Waste that does not appear to be an immediate threat, it will be set aside, roped off and isolated, away from traffic and personnel. Danger signs and warnings will be posted.

No attempt will be made to open suspect waste containers. The Company will notify appropriate government agencies, including the local Fire and Rescue Department and Police Department, for dispatch to the facility.

In all cases where suspected Hazardous Waste is found and is considered to present a possible immediate threat (such as explosives or ruptured drums), no attempt will be made by facility personnel to move it. The material will be left in place and the area roped off. Personnel and traffic will be prevented from operating in that section of the plant. The Company will notify appropriate Emergency Response Personnel.

All sampling and identification of suspected Hazardous Waste is done by trained and equipped members of the local Fire and Rescue Department. If it becomes necessary, an independent contractor will determine the status of any suspect material and identify handling to be used. If a spill of a reportable quantity of an identified Hazardous Waste occurs, the Hawaii Department of Health Waste will be notified either by the Company or local authorities. If the waste meets any of the Hazardous Waste identification criteria established by the controlling regulatory agencies, it will be properly packaged, labeled and transferred by appropriate local authorities or private contractors. Its transfer from the facility will be accomplished in as expeditious a manner as practicable, using appropriate State/Federal forms and procedures, and only appropriately-licensed hazardous waste transporters.

Information about each Designated Hauler's vehicle and each Designated Hauler, including vehicle body type and solid waste tag number, number of loads delivered, hauler name and address, contact person and telephone number has been provided to the Company by the County. The Company will also collect this information on other haulers routinely using the facility. This information establishes a data base for identification of vehicles and for backtracking to the source any Unacceptable or suspected Hazardous Waste.

The Company trains its operations and supervisory staff on procedures necessary to operate the Unacceptable and Hazardous Waste Screening Program. Training includes actions taken in the event of suspect or identifiable Hazardous Waste. The employee training program will be implemented in the following manner:

- Employees will be given supervised on-the-job training. No new employee will be assigned to a position involving the management of incoming solid waste without supervision by an individual already trained or without having received formal training themselves. A master file which lists completed personnel training will be maintained at the facility. This master file will include the trainee names, dates of sessions and instructors who participated in each training session.

- Aggressive implementation of the screening, enforcement, and education program outlined above should effectively ensure that neither Unacceptable Wastes nor Hazardous Wastes is received at or burned in the facility.

Residue from the RDF processing operation is loaded into RDF processing residue trailers. During loading, RDF processing residue trailers are located in the loadout building adjacent to the RDF processing plant. The sequence of operation calls for one trailer in the loading sequence and one empty trailer in the standby position.

RDF processing residue from the RDF processing plant is hauled to the landfill in transfer trailers. The trailers are equipped with top covers and are watertight to prevent leakage. Tractors are provided for the hauling of the RDF processing residue trailers. During the peak hours of operation, two trailers are positioned in the residue loading area and one trailer will be in transit to the landfill. Currently approximately 250-300 tons of RDF processing residue is generated in a day. This amount will not increase with the addition of the third unit.

Combined ash from the RDF boilers is hauled to the landfill in trailers. Tractors are provided for the hauling of the ash trailers. Two tractor trailers will be at the ash loading station with other tractor trailers in transit to the landfill. All ash trailers are equipped with top covers and are watertight to prevent spillage during transport to landfill. Ash trailers are washed in a designated truck wash area where the liquids from the wash is contained and reused as quenching liquid in the submerged scraper conveyor. The combined ash is hauled to the monofill 24 hours a day and seven days a week. Currently approximately 250-300 tons of combined ash is generated in a day. The new unit generates an additional 230-240 tons (wet weight) of combined ash per day that requires additional trailers to transport combined ash to the landfill from the Mass Burn ash loadout building. The ash hauled from both the RDF units and the Mass Burn unit is combined ash.

IV. Description of the Operational Procedures Involved.

Solid Waste Delivery

Acceptable MSW is delivered to the RDF Facility by transfer trailer, packer trucks, City and County route collection vehicles, and private vehicles. All delivery vehicles are weighed into the RDF Facility on a 60-ton, 70-foot capacity receiving scale located adjacent to the central scale house. A second scale of equal capacity is utilized for determining vehicle tare weights, as required, and for weighing recovered ferrous materials and residue leaving the site. A fully furnished and equipped weigh station with one additional seventy-foot (70') long truck scale will be included with the MBU Expansion.

All vehicles using the Facility are identified by vehicle license number. A computer database contains specific information required for billing purposes. The weighmaster inputs the vehicle identification which initiates the weighment and automatic billing systems.

Receiving and Storage

From the scale house, incoming trucks are directed to one of the three receiving locations. In general, route collection vehicles and packer trucks are directed to the tipping locations along the elevated dumping platform of the receiving and storage area for MSW processing or the Mass Burn pit. Transfer trailers are directed to the ground level dumping area or the Mass Burn Pit. Typically a spotter directs trucks to the appropriate locations for tipping.

At the scale house, the vehicles pass between two radiation detectors before being weighed to monitor for radioactive materials. In the event the alarms are set off, the vehicle is moved to an area where exposure to personnel is minimized. The Hawaii State Department of Health (HDOH), Noise and Radiation Branch is notified after facility personnel verify the concentration of the material. The HDOH representative determines how to properly handle and dispose of this waste. At no time will HRRV accept any radioactive waste for processing.

The Acceptable Waste is stockpiled in the MSW storage areas for RDF production as it is received and fed out of storage for processing into RDF. Large crawler-dozers stockpile the Acceptable Waste. Currently front end loaders retrieve the waste for process feed in the RDF units. The Acceptable Waste stockpiled in the receiving pit for the new MBU Unit 3 is retrieved by an overhead crane and fed into the Mass Burn Unit.
The MSW receiving and the RDF storage areas are designed to hold approximately three days storage of Acceptable Municipal Solid Waste.

Methods to Handle Bulky Waste and Nonprocessible Wastes

At the RDF Units, noncombustible bulky metallic waste, such as white goods, discarded stoves, refrigerators and other appliances and bulky noncombustible items that cannot be processed, are occasionally received with acceptable waste. These ~~unacceptable~~ items are retrieved and placed on the West wall of the MSW receiving room. If the items are combustible, they will be taken to the Mass Burn Unit where they will be shredded by the bulky waste shredder and fed into the Mass Burn Unit. If the items are noncombustible and are metallic, they will be taken to the metal recycler for recycling. If they are noncombustible and not metallic, they will be pushed aside by loader operators and, when time permits, pushed to the bulky waste loadout area for removal to the landfill. If the items contain refrigerants, they will be trucked to the Solar Building for further processing and recycling by a permitted recycler.

The Acceptable Waste in the RDF units is conveyed past an inspection/picking station before being fed to the primary shredders. Items that cannot be processed that remain in the waste stream at this point are removed by the grapples at the inspection/picking stations and dropped through hoppers into trailers positioned below. When full, the trailers are hauled to landfill.

In the MSW receiving building for the MBU, items that cannot be fed into the refuse charging hopper will be shredded by the bulky waste shredder and fed into the MBU if they are combustible. If they are not combustible, they will be removed from the tipping floor by front end loaders or from the pit by the crane in the crane laydown area and placed on the north or south wall to be taken to metal recycler for recycling or taken to the landfill if they are not metallic.

Acceptable bulky material/and or tires once received and scaled will be directed to the waste

auxiliary building. The vehicles will proceed to the north side of the waste auxiliary building, back into the building and will deposit the bulky/tires into one of the two concrete bunkers located in the building. A loader will be used, within the concrete bunkers, to push the dumped materials toward the grapple. The shredded material is conveyed then mechanically moved to a dump truck or yard container located to the west of the shredder. The dump truck/yard container with the shredded materials will be sent either to the RDF storage building or to the Mass Burn tipping floor pit.

The shredder equipment will include a magnet with cross belt for removal of ferrous materials. The ferrous materials will be collected in a container then moved to the ferrous enhancement facility.

Process Line Arrangement and Operation

The RDF Processing Plant currently operates two parallel and independent process lines. Each line has a nominal capacity of 100 tons per hour. Effective capacity after allowance for stoppages to retrieve nonprocessible waste and for cleaning is about 85 tons per hour. Normal operations will be on a 2 or 3 shift/day basis on weekdays and normally one shift on Saturdays to achieve the desired processing throughput. The MBU Expansion will add a third completely separate process line utilizing different processes for the proposed mass burn waterwall MWC. The new MBU will have a MSW receiving area and a solid waste storage pit. General arrangement drawings of the three lines and their components are provided as Figures 7-17.

The process steps and governing design parameters for the major process system components currently being operated in RDF Units 1 and 2 are described in the following pages. Description of the processing systems and design parameters to be run in the proposed MBU expansion (Unit 3) will follow.

Processing System – RDF Unit 1 and Unit 2

Process Line Load and Feed

Acceptable Waste is delivered by front end loader from the storage area to the conveyor. The front end loader loads the waste onto a high impact steel apron feed conveyor. The waste is metered by the feed conveyor onto an inclined conveyor which carries the waste onto a horizontal drag conveyor feeding the primary shredder. The picking station equipment operator stationed in the grapple control bunker at the top of the horizontal drag conveyor inspects all waste being carried to the primary shredder. Oversized or nonprocessible items observed on the conveyor are removed for disposal.

Primary Shredder

The primary shredder performs coarse shredding as the first step in the processing line. It breaks open closed bags and boxes, exposes ferrous materials for subsequent recovery and breaks larger glass containers.

The shredders are designed for operation at a nominal process rate of 100 tons per hour with an operating range of 70 to 130 tons per hour depending on the particular characteristics of the solid waste being processed.

The shredder consists of a horizontal motor driven rotor with swinging hammers arranged in four axial rows around the circumference of the rotor. The spacing of the hammers are arranged to equalize the impact across the width of the incoming waste stream.

Shredder motor current is monitored during operation and an interlock is provided to interrupt power to the feed conveyors if the shredder current approaches an overload value. The feed conveyors can be restarted manually when the shredder motor current has returned to a nominal operating value. Normal overload protection for the shredder motors is also provided.

Shredder rotor bearing temperature is monitored for any abnormal rise in temperature. A pretrip annunciator is provided in the control room to warn of an abnormally high temperature condition. Continued temperature rise will first interrupt power to the feed conveyors and, after an adequate delay to clear the shredder of in-process material, interrupt power to the shredder drive motor.

Process Conveyors

In addition to the process line feed conveyors described above, conveyors are used to transport the in-process material through the various steps in the process. Each process conveyor is designed to handle 150% of the anticipated load, appropriate to its particular function in the process. In this way an adequate reserve capacity for variations in overall processing rate and solid waste composition is provided.

All conveyors downstream of the primary shredder are of the rubber belt type. Both deep and shallow troughing designs are used depending on the type of material which the conveyor will transport. Cleated belt conveyors are used on steep inclines.

Ferrous Metal Recovery

Following primary shredding, the coarsely shredded waste will be carried by an inclined belt conveyor to the magnetic separator. The magnetic separation system consists of two electromagnetic drums. The secondary magnetic drum diverts the separated ferrous metal away from the primary magnetic drum and then directs it to the ferrous collection conveyor.

Each magnetic separator is capable of continuously processing an average of 100 tons per hour of coarsely shredded waste and separating in excess of 80 percent of the magnetic ferrous scrap in the Acceptable Municipal Solid Waste.

Enhanced Ferrous Metal Recovery System

The ferrous collection conveyors transport the magnetically separated ferrous metal to the Enhanced Ferrous Metal recovery system which consists of a non-shreddable picking station, a vertical shaft Ferrous Metal Shredder, and an air classifier. Non-shreddable material is removed from the ferrous shredder feed conveyor at a manual picking station. This non-shredded metal material is loaded into a trailer and hauled to the appropriate metal recycling facility. The shreddable metal material is fed into a vertical shaft hammer mill and shredded to nugget size piece. Adhering paper and plastic material (fluff) are liberated during the shredding process and recovered in an air classifier. The fluff is loaded into a trailer which is subsequently

discharged into the RDF storage area or returned to the MSW tip floor. The shredded metal is recovered by a rotating magnet drum, loaded via transport and shuttle conveyors into trailers and hauled to an appropriate metal recycling facility. The Enhanced Ferrous Metal Recovery system can be by-passed. The by-passed separated ferrous metal is loaded via transport and shuttle conveyors into trailers and can either be returned to the MSW tip floor or sent to the landfill.

Primary Separation Units

With the ferrous metal removed, the main waste process stream falls from the ferrous removal system across a divider arrangement and onto two adjacent conveyors moving in different directions. This splitting conveyor operation divides the stream into two approximately equal streams which are then fed into the two parallel primary separation units in each line.

The primary separation units are of proprietary Combustion Engineering, Inc. design. The separation units are fully enclosed with replaceable separator sections, variable speed drives and adjustable pitch angle to allow fine tuning of the separation process to accommodate seasonal and long-term variations in the waste composition.

These units accomplish two stages of separation and are used to remove glass, sand, dirt, rock, bone, dense particles and other small nonferrous materials. Three discharge streams are conveyed from these units.

1. A process residue stream consisting of fine sand, glass, dirt, etc. This material is conveyed directly to the process residue loadout area with no further processing.

2. A sized fraction consisting primarily of small combustible products together with some heavy particles of rock, bone, ceramic, glass, etc. This stream is directed to the inlet of the secondary separation units for further processing.

3. An oversized fraction consisting primarily of paper and plastic, which is conveyed to the secondary shredder for size reduction.

Secondary Separation Unit

The sized combustible material fraction discharged from the primary separation units is conveyed and discharged into the secondary separation unit. The secondary separation units are of proprietary Combustion Engineering, Inc. design and are similar to the primary units with essentially the same design features. The action of the unit breaks up and loosens entrapped combustible material which is separated from the noncombustible material.

There are two discharge streams from the secondary separation units. The RDF size combustible material is collected on belt conveyors and conveyed to the Refuse Derived Fuel Storage Area. The undersize material is largely noncombustible residue and is conveyed directly to the process residue loadout area. Approximately 250-300 tons of RDF process residue is generated in a day.

Secondary Shredder

The oversized fraction discharged from the primary separation units is conveyed directly to the motor driven horizontal shaft secondary shredder. Rotating hammers are arranged and sized to achieve the desired RDF particle size. Hammer shape, grate configuration and size may be changed to achieve the optimum particle size for fuel performance and to accommodate seasonal variations in waste composition. The correctly sized is then pushed by a ram (stationary packer) into the RDF storage room for use as fuel.

Motor current and bearing temperature monitoring with appropriate interlocks similar to those on the primary shredder are provided.

Dust Control Cyclone and Baghouse System

Each process line is provided with a cyclone and baghouse system for dust control and collection.

The system receives dust laden air through a system of collection ducts from the following process locations:

- The secondary shredder;
- The primary and secondary separator dust hoods; and
- Miscellaneous conveyor transition points

The air drawn from the secondary shredder acts as an air sweep to improve the movement of lighter material through the shredder. The air from the separation units are routed to a process cyclone and baghouse before discharge to the atmosphere.

The great majority of the dust and other particles are removed from the air stream in the cyclone where it is collected and discharged through an air lock to the secondary shredder discharge conveyor. Final clean up of the air stream occurs in the baghouse from where clean air is discharged to atmosphere. The finer dust particles collected in the baghouse are periodically discharged through an air lock onto the secondary shredder discharge conveyor system.

The air stream is drawn through the entire system to this point by an induced draft fan located after the cyclone and the baghouse. The baghouse is provided with a water deluge system for fire protection.

Process Line Control

The primary control location for each process line is the central control console in the processing plant control room. Control of the primary shredder feed conveyor is located at the picking station in addition to the remote controls at the control room.

The central control console contains start, stop, speed controls and instrumentation as appropriate for all equipment in the process lines. In addition, status indication lights and annunciation for upset and faulted conditions are provided and closed circuit video monitors are displayed in the control room. Local control buttons for start and stop are located within the

plant.

The control system is interlocked such that in the event that any component (conveyor or processing device) stops, either from manual or automatic initiation, the upstream components in that line will be automatically stopped to avoid feeding an inoperative component. Downstream components will continue to operate until manually tripped, thus allowing the downstream sections to clear themselves of partly processed waste. Interlocks are provided so that restart from the preceding "hold" condition can only be accomplished sequentially in an upstream sequence. This insures that the restart operation will not feed the waste stream into a non operating component or device.

In addition to the individual local and remote controls described above, stop controls for certain blocks of equipment and a master stop control to allow emergency stop of all processing lines is provided.

RDF Storage and Transport System

The RDF storage and transport system performs the function of receiving RDF, storing it for use as the power generation system demand requires, and transporting it from the storage area to the RDF feeder inlets along the front face of the boilers. The RDF storage and transport system is comprised of two parallel, redundant trains of conveyor components.

RDF Storage

RDF is conveyed by belt conveyors from the secondary shredder, the secondary separator and the dust collection system into stationary compactors that push the RDF into the storage building and keep the discharge points of the conveyors clear. Front end loaders distribute and stockpile the RDF within the building.

RDF Retrieval from Storage

RDF is recovered from storage for boiler feed by front end loaders. The front end loaders attempt to maintain a constant burden depth on horizontal steel pan conveyors located in the floor of the building. The horizontal conveyor discharges onto an inclined pan conveyor.

Boiler Feed System

The inclined pan conveyor in the RDF storage building discharges the RDF onto a rubber belt conveyor that transports the RDF up to the boiler face. At the boiler face, through a system of conveyors, diverters and swinging panels (distributors), the RDF is distributed evenly into a live bottom auger bin. The auger bin then meters the RDF at a uniform rate into the boilers. The system is designed to allow feeding of either auger bin from either process line.

Control of the RDF feed metering and transport system is primarily from the power plant control area which provides speed control for the feed transport conveyors in the RDF storage area. The power plant control area start controls for the augers and feed transport conveyors are interlocked to require a simultaneous permissive signal from the process plant control area in order to allow startup of the metering and transport system.

Local stop controls together with maintenance bypass start controls are provided at appropriate locations for each component.

Sequential stop interlocks, as on the process line equipment, are provided to avoid spillage in the event that a component in the RDF feed train stops or malfunctions.

Boiler Description

The Facility incorporates two Combustion Engineering, Inc. VU-40 steam generators (boilers), each designed to burn RDF alone, RDF and diesel fuel in combination or diesel fuel only. The two boilers can fire the RDF produced from operation at the peak processing rate of 12,096 tons per week of RDF. This is approximately 36 tons per hour per boiler. Both boilers are operated during normal operation.

Boiler Operation - Fuel Firing

Each auger bin is equipped with five separate sets of three augers that discharge into five RDF feed chutes spaced across the front face of each boiler. The augers, in response to signals from the combustion control system, regulate the flow of RDF to the RDF feed chutes.

The feed chutes introduce the fuel into the boiler with a controlled distribution so as to achieve the proper combustion pattern within the boiler.

RDF introduced into the boiler combustion chamber burns both in suspension (lighter components supported in the combustion air stream) and on the stoker grates (heavier particles falling to the grate and burning there).

The stoker grate is a continuous ash discharge stoker grate which is operated at a speed such that the burned out RDF residue (ash) is continuously removed from the front face of the boiler where it falls by gravity into the quench tank of the ash handling system.

The VU-40 boilers are designed with provision for a controlled flow of air from underneath the stoker grates to assist in complete burning of the material on the grate and to provide cooling of the grates themselves. In addition, an overfire air system distributes additional combustion air over the grate to complete the combustion requirements.

Instrumentation and Control

Control of the Energy Plant is from a control room located adjacent to the boilers. Provisions for automatic control are supplied with bypass capabilities for manual control. All parameters necessary for safe and efficient operation are displayed on control room indicators.

Bottom and Fly Ash Handling System

Each of the steam generators is equipped with a submerged scraper conveyor (SSC). A stoker ash transition chute is located beneath the stoker ash discharge outlet and is immersed below the water level of the SSC to maintain an air/gas seal.

The water-tight trough is provided with replaceable abrasion-resistant steel plates which cover the bottom of the upper trough. The hot bottom ash is quenched in the water and falls to the bottom of the SSC. Steel scrapper flights carry the ash up the inclined slope of the upper trough and is dewatered as it moves up the slope.

As the dewatered ash is discharged from the SSC, it falls onto the main disposal belt conveyor. This conveyor travels from the boiler building to either the Bottom Ash Metal Recovery System (BAMRS) or the ash tower where it is combined with flyash and loaded into trailers.

The bottom ash, when routed to the BAMRS will first go through a magnet to remove the coarse ferrous materials, then to a finger screen to remove material greater than 4 inches (overs). These materials are collected in roll-off storage containers. The materials greater than 4 inches are sent back to the tip floor to be re-processed.). The BAMRS will separate the bottom ash into 5 streams. They are: 1) Material greater than 4 inches (overs) which is sent back to the tip floor to be re-processed, 2) Ferrous metals (fine and coarse), 3) Non-ferrous metals, 4) Material between 3/8" and 4" and 5) Fine material less than 3/8". Both materials from #4 & #5 are conveyed by rubber belt conveyors back to the ash tower to be combined with the fly ash into trailers for disposal at the ash monofill.

The stoker siftings are transported to the tail section of the unit's SSC through the use of a series of augers.

Each of the steam generators is equipped with a rotary vane feeder and a flyash conditioner (pugmill). The system includes a surge hopper and rotary vane feeders designed to maintain a constant flyash flow to the conditioner. The flyash conditioner is a horizontal twin shaft conditioner with steel paddles designed to mix the flyash with water. The water spray system moistens the flyash to the desired moisture.

The flyash is transported from the economizer, air preheater, and baghouse hoppers through the use of a series of drag conveyors. These drag conveyors empty into flyash conditioners.

Moistened flyash is discharged from the flyash conditioner and combines with bottom ash, loaded into trailers and is hauled to a lined monofill. Approximately 250-300 tons of combined ash is generated in a day. The combined ash is hauled to the monofill 24 hours a day and seven days a week.

Air Pollution Control System

The air pollution control system consists of a spray dryer absorber and a fabric filter dust collector (baghouse). The scrubber uses a lime slurry reagent to control SO2 and HCL air emissions to meet NSPS Subpart Eb emissions standards. The lime for the scrubber system is delivered by truck and stored in a storage silo. The lime is mixed with water to form slurry which is then fed into the gas flow path. Following the spray dryer absorber is a multi-module fabric filter baghouse that includes a reverse air cleaning system with controls, compartment isolation system, and ash collection hoppers. The fabric filter baghouses were installed in the 2009 to 2010 time period to replace the electrostatic precipitators and is used to control particulate matter emissions.

Figures 7-9 show the process flow through the RDF units.

Processing System – MBU Unit 3

The Expansion, will utilize a new 900 ton per day ("TPD") mass burn waterwall municipal waste combustor (MWC) unit, its associated air pollution control equipment, and all the equipment required to tie the addition into the existing Facility, and a new turbine generator. This mass burn waterwall municipal waste combustor employs a completely different set of processes as compared to the existing units as described in the previous section.

Flow Description

Except when screening of waste is required, MSW will be brought in by trucks and tipped into the refuse storage pit. For loads that are screened, MSW will be tipped onto the tipping floor. After visual inspection a front end loader will push the Acceptable Waste into the refuse storage pit. Unacceptable Waste will be removed.

All refuse will be transferred by overhead crane to the feed hopper and feed chute of the waterwall furnace. In the furnace, a ram type volumetric feeder will move the waste onto the stoker grade. Above the grate and integrated with the waterwall furnace will be the steam boiler, designed specifically for solid waste combustion. Flue gases from the boiler will be directed through air pollution control equipment for the removal of acid gases and particulate matter. Steam generated in the boilers will be delivered to a new turbine-generator to produce electricity for in-plant needs and for sale to HECO.

Combustion System

After being charged into the feed chute, the refuse will be metered out onto the surface of the Martin stoker from the bottom of the feed chute by hydraulic feed rams. The proprietary reverse-reciprocating action of the stoker grate agitates the fuel bed continuously in a manner which causes refuse burning from the bottom of the refuse bed, resulting in a burnout of better than 98 percent of all combustible matter.
The stoker grate will be inclined downward from the feed end toward the discharge end and will consist of alternating rows of fixed and moving grate bars. Unlike conventional stoker designs, the moving grate bars will push upward at 30 to 50 strokes per hour against the natural gravitational downward movement of the refuse. This stoker action will agitate the burning refuse to form and even depth of fuel bed. Burning refuse will be pushed back underneath the freshly fed refuse to achieve continuous drying, volatilization, ignition, and combustion.

As distinguished from typical stokers utilized for refuse combustion, the grate bars of the Martin stoker are machined on their sides to achieve intimate contact between adjacent bars. Combustion air admitted to installations utilizing this system show flame patterns wherein the completion of the combustion is maintained within the confines of the lower furnace (below the upper level of the refractory lined furnace portions) and away from the walls without stratification. .

The combustion air will be taken from the tipping floor and pit area and will be directed to the underfire and overfire air fan inlet. This will also maintain a negative pressure in the tipping floor to reduce odor and dust escaping to the ambient environment. To ensure maximum burnout of refuse with high moisture content, a steam-heated combustion air preheater will be located at

the combustion air fan outlet. This heater will be capable of preheating incoming ambient air to 300^0 F when firing refuse having low heating value.

Furnace and Boiler

Located above the stoker grate will be the boiler furnace/combustion chamber, constructed of gas-tight, continuously welded waterwalls down to the grate surface.

Soot blower sequencing will be completely programmable and set to maintain the most efficient boiler operations. The program can be changed if, during plant operation, it is found that certain sootblowers need to be operated more frequently to maintain boiler cleanliness.

Ash Handling System

The stoker will be furnished with a proprietary Martin ash discharger, which will receive the burned-out material as it falls over the clinker roller and cool it in a quench bath. The stoker will also include an automatic grate siftings removal system which will periodically (approximately every 30 minutes) sweep the undergrate plenums and convey the siftings to the ash discharger. No manual cleaning of the stoker undergrate plenums will be required

From the quench chamber, a hydraulically driven ram will push the ash up an inclined draining/drying chute. In the chute, excess water from the ash will drain back into the quench bath.

Ash containing enough moisture to prevent dusting, will then fall to a vibrating conveyor. The conveyor will feed a grizzly scalper to remove large materials from the ash before it is transferred by an enclosed inclined belt conveyor to the ash loadout building. A feed conveyor will direct the ash to a magnetic drum which separates the ferrous metal from the ash. The ash is then discharged onto a spreader feeder and past an eddy current separator to remove non-ferrous material. The bottom ash portion of the ash stream will be directed onto a distribution chute which deposits it in the loadout trailers. A distributing conveyor and chute system will convey the ash and ferrous metals into trailers.

The ash handling system will accommodate items equal in size to an item which can leave the ash discharger. Items larger than 10 inches will be separated at the grizzly scalper and transported to a covered rolloff via a front end loader. These bulky items will be removed at the scalper because the design of the ferrous separation system requires that the magnetic separator be located as close as possible to the residue stream in order to achieve the desired ferrous recovery rate of 80 percent by weight of all magnetic ferrous contained in ash which contains approximately 8 percent (by net weight) of magnetic ferrous materials greater than 1 inch in size in all dimensions but less than 10 inches. The non-ferrous recovery system is designed to remove the non-ferrous metals from the bottom ash stream. The system will consist of a rotary eddy current separator to recover the non-ferrous material and all necessary chute work and product distribution conveyors.

The fly ash handling system will collect fly ash from the second/third pass hoppers, the superheater hoppers, the economizer hoppers, and the air pollution control systems. Flap gates or rotary valves will be located below collection hoppers or between collection hopper screw conveyors and downstream transport screw conveyors to maintain the combustion system

pressure boundary and prevent air infiltration. Ash will be conveyed to the flyash silo, situated next to the ash loadout building. It will then be conveyed to a pugmill for wetting and combined with the bottom ash in the ash loadout building as it is loaded into the trailers.

Air Pollution Control System

Flue gas from the new combustor will be treated by air pollution control technologies that have been designated by the EPA as Maximum Available Control Technology (MACT). In addition, Unit 3 will be equipped with the Covanta Very Low NOx (VLN™) system, which is an integral component of all new Martin® stokers, and varies the combustion process over typical stokers in order to significantly reduce NOx emissions. Flue gas in the furnace will then be processed by a selective non-catalytic reduction (SNCR) system to further reduce nitrogen oxide emissions. From the boiler, the flue gases will be directed through specially designed air pollution control equipment for effective control and removal of acid gases and organics, particulate matter, mercury and other heavy metals.

The sequence of control systems include:

- VLN™ system, good combustion control and furnace operating practices to control carbon monoxide (CO), nitrogen oxides (NOx), and dioxin formation;
- Selective non-catalytic reduction system (SNCR) for NOx control;
- Powdered activated carbon injection for control of mercury;
- Dry alkaline (lime) scrubber to control sulfur dioxide (SO_2), sulfuric acid mist, MWC acid gases (SO_2 and hydrogen chloride (HCl)), fluorides, as Hydrogen Fluoride, and
- Fabric filter to control particulate matter (total suspended particulates, particulate matter 10 microns or less (PM10), and particulate matter of 2.5 microns or less)) and particulate bound-SO_2, metals, sulfuric acid, fluorides, and MWC acid gases and organics.

Flue Gas Recirculation

The Covanta VLN™ system, a type of flue gas recirculation (FGR), is an integral component of all new Martin® stokers.

The secondary or overfire air system consists of two rows of closely spaced overfire air nozzles, one row in the front wall above the stoker feeder ram(s) and the second row in the rear wall above the rear arch. The overfire air system will be designed to provide approximately 13 percent of the total combustion air for combustion above the stoker grate.

The internal gas recirculation (IGR) air system consists of a dedicated IGR air fan and four rows of closely spaced tertiary air nozzles, two rows in the front wall above the overfire air nozzles near the boiler's nose and two rows in the rear wall. The IGR system will be designed to provide approximately 26% percent of the total combustion air flow.

The overfire air and IGR nozzle design is such that complete penetration of the gas stream above the stoker is achieved for flame shaping and thorough burnout of combustion products including organics.

The combustion air will be taken from the tipping floor and pit area and directed to the combustion air fan inlet. The internal gas recirculation will be taken from above the stoker's

clinker weir and directed to the IGR fan inlet. To ensure maximum burnout of refuse with low heating value and high moisture content, steam heated combustion air heaters will be located at the combustion air fan outlet to heat the incoming air to 200-300° F.

Selective Non-Catalytic Reduction

A selective non-catalytic reduction (SNCR) system will be installed and designed to meet the NOx emission standard of NSPS, Subpart Eb and the BACT emission rate as determined by the BACT evaluation. The SNCR system will be designed for operation with the new Unit 3 at 110% of maximum continuous rating (MCR). Aqueous ammonia will be injected into the boiler to promote the conversion of NOx to nitrogen and water vapor. The quantity of aqueous ammonia injected will be automatically controlled to maintain a manually selected stack setpoint that is below the final permit emission limit.

Aqueous ammonia with a concentration of less then 20% by weight will be used. Ammonia storage and handling will be designed on good engineering practices relative to other ammonia handling and storage facilities and other HDOH requirements. The aqueous ammonia system will consist of an ammonia storage tank, ammonia pumps, purge air blowers, and ammonia injection nozzles at the boiler. The ammonia storage tank will provide a minimum of seven-day supply of aqueous ammonia at the expected normal operation consumption rate. The ammonia storage tank will be located within a concrete containment to prevent any spills from spreading throughout the Facility site. A truck unloading pad sized to hold the volume of the delivery truck will also be provided.

Carbon Injection

A powdered activated carbon injection system will be designed to operate in conjunction with the spray dryer-baghouse system to control mercury emissions from the new unit. The activated carbon control system will be designed to inject powdered activated carbon into the flue gas upstream of the semi-dry scrubber where it will become well mixed to promote reduction of mercury. The carbon will be pneumatically conveyed to the flue gas duct. A new activated carbon storage silo will provide on-site storage of activated carbon. The amount of carbon, if any, to be injected to achieve the required level of control will be determined during initial start up and performance testing.

Spray Dryer Absorber

The air pollution control system will include a semi-dry scrubber (also known as a spray dryer absorber). The scrubber will use a lime slurry reagent and be designed to meet the NSPS Subpart Eb emission standards for SO_2 and HCl and the BACT emission limit for sulfuric acid mist and fluorides (as hydrogen fluoride).

The expansion will include a new lime storage silo for lime and a new lime slurry preparation system to provide lime slurry for the new scrubber. Lime for the semi-dry scrubber system will be delivered by truck and stored in the new lime storage silo. Lime will be slaked and fed as a slurry to the atomizers of the new scrubber and injected as a fine mist of droplets into the flue gas. Acid gas removal performance will be controlled by adjusting the injection rate of lime slurry, which will be automatically adjusted in response to the flue gas SO_2 content. Scrubber outlet temperature will be controlled by adjusting the quantity of dilution water added to the

slurry.

The flue gas will be ducted through a cylindrical vertical chamber where it will be intimately mixed with an atomized spray of lime slurry droplets. Dissolved lime provides the mechanism for removal of acid gases while evaporation of water reduces the flue gas temperature. The treated and cooled flue gas will then flow to a high efficiency pulse jet baghouse where the fly ash particulate, semi-dry scrubber reaction products, and unreacted lime will be collected and removed from the flue gas. The filter cake that accumulates on the fabric filter bags will also provide a substrate of unreacted lime carried over from the semi-dry scrubber, allowing additional reaction with acid gases and further reduction of acid gas emissions.

Dry product that falls into the hopper at the bottom of the semi-dry scrubber chamber will be removed by the fly ash conveying system associated with the baghouse system.

Fabric Filter Baghouses

Following the flue gas SDA system will be a multi-module fabric filter dust collector (baghouse) including a pulse jet bag cleaning system with controls, compartment isolation system and ash collection hoppers with heaters. The baghouse will be designed to meet the emission limitations for particulates and opacity of USEPA NSPS, Subpart Eb as well as the BACT emission limits for PM10, PM2.5 and MWC metals.

The baghouse will be installed with multiple compartments to allow bag cleaning with one module off line while maintaining system operation. The fabric filter unit will be designed for continuous operation at the specified conditions and for long bag life. The captured fly ash will be collected in hoppers and that will be connected to the ash handling system as discussed in Section 3.4.

After leaving the air pollution control system and the induced draft fan, the flue gases will be discharged to the atmosphere through a round, single shell, 199 feet (60.7m) high stack.

Figures 10-17 depict the process flow of the proposed mass burn unit.

V. Description of the Type and Number of Equipment and Storage Containers to be used at the Facility.

Mobile equipment is used in the existing municipal solid waste storage and refuse derived fuel storage rooms. The mobile equipment is used to move the MSW, create space in the MSW storage room and in the expansion facility will be used to move MSW from the tipping floor into the refuse storage pit. Typically two equipment operators are in the RDF/MSW storage room. On occasions, three equipment operators will be moving the MSW.

In the RDF storage room, one equipment operator uses the front end loader to load RDF on to the RDF feed conveyor. This equipment operator is responsible for feeding the RDF which feeds into the municipal waste combustor Units 1 and 2. Close coordination is maintained between the equipment operator and the power block control room operator to ensure a constant feed rate to the conveyors.

The following is the amount of mobile equipment and their model numbers:

- 7-8 - Caterpillar front end loader models: 966E, 972, 980 and 980G or equivalent
- 2 Caterpillar bulldozer models: D8N and D8R

Waste Processing

In the RDF Units 1 and 2, a MSW horizontal feed conveyor feeds the MSW to the grapples where large waste products are removed (unprocessible waste). The MSW then enters the primary shredder and is reduced in size. Trommels, screens, and separators after the primary shredder either convey the shredded MSW to the secondary shredder for further size reduction, convey it to the RDF storage room or remove it from the process into a trailer.

RDF Unit Equipment:

- MSW horizontal feed conveyor – 150 TPH capacity, 100 TPH average speed rate
- Hydraulic grapple – 500 pound capacity
- Primary shredder - 70 – 130 TPH capacity, 75-100 TPH average
- Primary shredder baghouse – 4500 ACFM
- Secondary shredder – 50-65 TPH capacity, 50 TPH average
- Secondary shredder baghouse – 40,000 CFM

In the new MBU the refuse will be dumped directly into the pit. From time to time, a loader will be used to clear the tipping floor of spilled refuse. Two overhead traveling bridge cranes with polyp type (orange peel) grapples will be provided to mix refuse and transfer it from the pit to the charging hoppers of the furnaces. Each crane will be designed to handle full capacity operation of the third boiler. One of the cranes will be used to keep the tipping bays cleared and combustion units properly charged. The second crane provides backup and can be used during peak delivery times to assist in refuse pit management. The cranes span the entire length and width of the refuse storage pit, furnace hopper, charging floor, and the crane park/maintenance areas.

The cranes will be operated from a remote pulpit located at the north end of the refuse pit in the control room permitting the operator to view the tipping floor and the refuse pit. Each crane will have a separate control station. The pulpit will be provided with ventilation and air conditioning unit and will be supplied with fresh air drawn from outside the pit area. It will also be equipped with a television monitor to allow observation into the combustion unit's charging hopper. Since the pulpit will be located in the control room, the crane operator will have direct voice communication with the Third Boiler control room operator. A communication system will be provided to facilitate communication with the tipping floor, scale house and the front end loader operator. The cranes will have semi-automatic controls that raise a loaded grapple and locate it over the charging hopper. Load discharge, return to the pit, and filling of the grapple will be manual. The operator will have the ability to override the automatic operation at any time. The weight of each load will be recorded automatically by load cells mounted on the refuse crane.

Oversized objects such as white goods like refrigerators and ranges, logs, furniture, etc. will be recovered from the refuse pit by the cranes.

White goods and large metal objects will be stored in a staging area at one end of the pit for subsequent loadout by truck ~~to scrap dealers or delivery to the landfill~~ to the Solar Building for

processing. Combustible bulk materials will be reduced by the bulky waste shredder and returned to the refuse pit.

The bulky waste shredder will be a low speed, high torque shear type specifically designed for bulky household waste shredding. It will be provided with automatic anti-jamming action to minimize shutdowns.

MBU Equipment:

- 2 - Overhead traveling bridge cranes with polyp type (orange peel) grapples
- Bulky waste shredder

Storage Containers

Approximately 250 to 300 tons of RDF process residue and 250 to 300 tons of combined ash are produced in a day by RDF Units 1 & 2. The material is hauled away in trailers that have a cover that closes after the trailer is loaded. The combined ash is deposited directly into a trailer in the ash tower. The RDF processing residue is deposited directly into a trailer in the waste processing building. The ash trailer carries approximately 15 to 20 tons of combined ash to the monofill located in the Waimanalo Gulch Landfill. The RDF processing residue is disposed of at the Waimanalo Gulch Landfill with the other solid waste material that is not processed at HPOWER.

Recycled ferrous and non ferrous metals from the BAMRS are collected in metal bins located under the BAMRS and from the metal recovery system in the Mass Burn Unit. The ferrous metal is hauled to the metal recycler. The non ferrous metal is hauled off by the non ferrous metal recycler. The ferrous storage bins are made of metal and hold approximately 27 cubic yards of material. The non ferrous storage bins are also metal and have a capacity of about 9.5 cubic yards.

The sump near the BAMRS has a capacity of about 1,000 gallons. The water in this sump is pumped to the submerged scrapper conveyor to quench the bottom ash. Any solid material in this sump is removed (as needed) and placed in the ash trailer for disposal at the monofill.

The truck wash sump has a capacity of about 12,000 gallons. The water in this sump is pumped to the BAMRS sump. Solid material from this sump is removed (as needed) and mixed with the combined ash from RDF Units 1 and 2 to be disposed at the landfill. The MBU Unit 3 ash loadout building will be connected to a settling basin. The water from the settling basin will be used as process water.

Used oil is collected in a used oil container that is doubled lined. This 385 gallon container is pumped regularly by an outside contractor.

Oil-filled equipment (including transformers, hydraulic stations, etc.) will be located in containment dikes of sufficient size to receive and hold the oil that may be spilled due to a leak, or a ruptured tank plus the rainfall quantity associated with a 25 year, 24 hour storm event (if

located outdoors), plus 6 inches of freeboard.

Lime for the air pollution control system will be stored in two lime silos that are approximately 14 feet wide by 50 feet high. Truck access to the lime silos will be provided such that the combined horizontal and vertical run of fill pipe does not exceed 150 feet. The lime silo will have a baghouse to control fugitive dust.

Aqueous ammonia solution for the air pollution control system will be delivered to the facility in tank trucks carrying approximately 6,000 gallons to a tank with approximately 10,000 gallon capacity. The tank will include relief valve, vacuum breaker and instrumentation. The ammonia storage tank installation will be in accordance with local and state requirements. The tank will be encircled by an above ground dike with capacity for the contents of the tank, plus the rainfall associated with a 25 year, 24 hour storm event and 6 inches of free board. The bottom will be sloped to a pump-out sump.

The tank will be provided with a truck unloading area directly adjacent to the dike. Spill containment of the truck unloading area will be provided by means of a curbed area sloped to the in-ground dike. Trucks will be unloaded using truck mounted transfer pumps, and vapor displaced from the receiving tank will vent back to the truck to prevent the release of ammonia vapor during the unloading process.

Safety features of the ammonia storage area include two hard-piped eyewash and shower stations. One will be on the platform near the pumps and one will be at grade near the truck unloading area). Eyewash and showers stations will also be provided at the injection nozzle locations within ten seconds of each hazard at the same elevation as required by ANSI-358.1. Ammonia leak detectors will be provided to monitor potential ammonia vapor leaks. One leak detector with multiple sensors will be located to monitor the ammonia storage tank and ammonia pumps area. One leak detector with multiple sensors will be located at the upper ammonia header level to monitor the sides of the new boiler. Both local and control room alarms will be provided.

Carbon for the air pollution control system will be stored in a common activated carbon storage silo that is approximately 12 feet wide by 50 feet high and is equipped with a baghouse to control fugitive dust. The injection train will include a blower, eductor, surge bin, gravimetric feeder, piping, wiring, process controls and other accessories needed for a complete, operational system. All activated carbon injection train equipment will be located in the skirted area of the carbon storage system.

Sodium hypochlorite will be stored in a tank of approximately 5,000 gallon capacity.

Boiler Make-Up Water will be stored in a 60,000 gallon storage tank. The boiler drain tanks capacities are two at 30,000 gallons each and one at 40,000 gallons. The wastewater holding capacity will be approximately 30,000 gallons (20,000 floor drain tank, 10,000 settling basin).

Lubricating oil and grease will be stored in drums of approximately 20 and 55 gallon capacities on the ground floor of the boiler structure along the west wall. The total capacity will be approximately 320 gallons. The area will be curbed and provided with a trapped floor drain. The lube oil and grease storage area will be located in an area protected by a sprinkler system.

VI. Sampling Analysis and Plan.

RDF processing residue and combined ash sampling plans, previously submitted, have no changes so are not appended to this document.

VII. Description of the Handling, Transport, and Final Disposition of By-products and Residuals.

RDF processing residue from Units 1 and 2 is loaded into RDF processing residue trailers. RDF processing residue trailers during loading are be located end to end in an enclosed drive-through enclosure adjacent to the processing plant. The sequence of operation calls for one trailer in the loading sequence and one empty trailer in the standby position.

RDF processing residue from the processing plant is hauled to landfill in transfer trailers. The trailers are equipped with top covers and are watertight to prevent leakage. Tractors are provided for the hauling of the residue trailers. During the peak hours of operation, two trailers are positioned in the residue loading area and one trailer will be in transit to the landfill. Approximately 250-300 tons of RDF processing residue is generated in a day.

Combined ash from the boilers is hauled to landfill in trailers. Tractors are provided for the hauling of the ash trailers. Two tractor trailers will be at the ash loading station with other tractor trailers in transit to the landfill. All ash trailers are equipped with top covers and are watertight to prevent spillage during transport to landfill. Ash trailers are washed in a designated truck wash area where the liquids from the wash is contained and reused as quenching liquid in the submerged scraper conveyor. Approximately 250-300 tons of combined ash is generated in a day from Units 1&2. Unit 3 will generate approximately 230-240 tons of combined ash per day. The ash is hauled to the monofill 24 hours a day and seven days a week. The combined ash from the new MBU will also be transported to the monofill.

Unacceptable waste that is collected along the west wall of the MSW storage room from RDF Units 1 and 2 is loaded into a trailer with a front end loader. This material is also disposed of at the local landfill. On an average 5 to 12 tons of unacceptable waste is generated in a month. Likewise, unacceptable waste that is collected along the north or south wall of the Mass Burn tipping floor will be loaded into a trailer with a front end loader and disposed at the landfill.

VIII. Discussion of Environmental Controls.

The facility is regulated by several offices of the Hawaii Department of Health, Environmental Management Division offices. CHRRV maintains compliance with the air pollution control, the underground injection control, the solid waste, and the national pollution discharge elimination system permits. The facility has the most stringent air emissions opacity limit in the State.

The waste handling operations are conducted in buildings, which minimizes MSW from being blown about. A street sweeper and grounds crew assist in managing MSW that escapes from the MSW receiving building.

Unpredictable oil spills from mobile equipment and waste haulers may occur. The facility operations personnel are trained in Spill Prevention and Countermeasure Control and

Stormwater Pollution Control Plan procedures on an annual basis. Facility personnel are trained to contain any oil spills with oil absorbent material and to notify their supervisors of the spills. If necessary, spills are reported to the appropriate regulatory agency.

The RDF waste processing facility shredder stacks vent to a baghouse to control particulate emissions. Facility personnel monitor the stack for visible emissions. Should visible emissions be observed, the waste processing facility shift supervisor or department manager is notified and the cause of the emissions is notified.

The existing MSW storage and the RDF storage rooms are equipped with an air ventilator with a removable/replaceable filter. Ventilation is provided to allow the safe operation of diesel equipment in the receiving and storage area. Due to the building height, the room is, in effect, a large settling chamber thereby minimizing the particulate level to the air ventilator.

In the Mass Burn Unit, the tipping floor/refuse pit will be ventilated by the boiler combustion air system. Manually operable wall louvers will be provided low on the tipping building wall. The louver face area will be based on approximately 300 cfm/ft^2. Outside air will be drawn through the louvers in the tipping floor and across the refuse pit by the combustion air fans for use as combustion air. This will maintain a negative pressure in the tipping floor and the refuse storage pit to reduce dust and odors from escaping to the ambient environment.

IX. Description of the Facility's Drainage System

The facility is graded in a manner that minimizes runoff from the facility. On-site drainage is shown in Figure 4. The closest body of water is the Pacific Ocean located approximately one-half mile to the west of the facility. A stormwater retention pond is located in the southwest corner of the facility The James Campbell Industrial Park stormwater collection system also receives a portion of stormwater runoff from the facility. The stormwater system is a concrete culvert that eventually discharges into the Pacific Ocean. The facility received a National Pollution Discharge Elimination System (NPDES) permit in January 2005.

X. Discussion of the Design and Operational Procedures to Minimize Vectors, Odors, Litter and Other Nuisances.

Good housekeeping practice is the primary means of vector and odor control. All departments are responsible for housekeeping in their work areas.

If vectors (rats, mice, roaches, mosquitoes) become a problem, plant personnel shall notify their supervisor. Personnel need to identify the type of vector, location of the vector where it was a concern and times of the day when the vectors were seen. The supervisor will investigate to determine if the vectors are a problem. After confirming that the vectors are a problem, the supervisor will bring it to the attention to the chief or plant engineer. The chief/plant engineer or designee will work with the purchasing manager to contract a pest management specialist. The pest management specialist will be on contract until the vector problem is resolved. Pest management specialists may conduct a one-time treatment or periodic treatment (weekly or monthly) as required.

The Waste Processing Facility (WPF) department is primarily responsible for litter removal around the facility. Grounds keeping staff under WPF supervision is primarily responsible for

minimizing litter around the facility.

The groundskeepers typically work Monday through Friday from 6:00 a.m. to 2:30 p.m. Their shift may change depend on the facility needs (e.g. outage support). The groundskeepers routinely cover the entire existing facility once per shift using a groundskeeper checklist as a guide. The groundskeepers may be directed to clean up a specific area by the management staff as necessary.

In the Mass Burn Unit, the tipping floor/refuse pit are enclosed and will be ventilated by the boiler combustion air system. Manually operable wall louvers will be provided low on the tipping building wall. The louver face area will be based on approximately 300 cfm/ft^2. Outside air will be drawn through the louvers in the tipping floor and across the refuse pit by the combustion air fans for use as combustion air. This will maintain a negative pressure in the tipping floor and the refuse storage pit to reduce dust and odors from escaping to the ambient environment.

XI. A Fire Prevention and Response Plan

The current facility has several means to control fires. There are automatic fire sprinkler systems on selected material handling equipment as well in the warehouse and office buildings. In large open areas such as the RDF room, there is a deluge fire protection system. In addition there are fire extinguishers and fire hoses located around the facility. Engineering drawings of the fire protection system are in the facility library.

The fire sprinkler system and extinguishers are inspected annually by an outside contractor. Inspection of the fire sprinkler system includes flowing water through the system and monitoring the alarm station. The maintenance department conducts a monthly sprinkler flow test. The monthly fire sprinkler test is a regularly scheduled item in the maintenance work order system.

Facility personnel inspect the fire extinguishers and fire hoses in their work areas on a monthly basis at a minimum. The departments may conduct more frequent inspections as determined by their department manager. Corrective actions are taken on-the-spot if possible. For example, if an individual finds a discharged extinguisher, the individual picks up a replacement extinguisher from the warehouse. Warehouse personnel contact the contracted vendor to recharge the expired extinguishers. Work orders are written for corrective actions that require repairs. The maintenance department will then schedule the work to be completed.

A purchase order is written by the safety supervisor for the fire protection system inspection. The purchase orders are maintained in the purchasing office. Monthly fire extinguisher and fire hose inspection reports are maintained in the safety office. The monthly fire sprinkler flow test reports are held by the maintenance department.

Fire Prevention Measures MBU (Unit 3)

A complete fire detection system will be provided for the MBU facility. All equipment will be UL listed or FM approved and will meet the requirements of the NFPA, insurance underwriter, and local authorities having jurisdiction.

The fire alarm system control panel will be located in the control room. Sectional and control

valves will be locked in their normal operating position. In addition, manual fire alarm stations (pull boxes), when required by local code, will be installed and will alarm on the control room fire protection board.

A class III standpipe and hose system designed in accordance with NFPA-14, will be provided that includes but is not limited to the tipping floor, refuse area, boiler structure, and turbine area except were Class I hose stations are required by code. Hose stations will be provided such that all portions of each story of the building are within 30 feet of a nozzle when attached to 100 feet of hose. Hose stations in the balance of the Facility shall be provided with hose reels. All drain valves on dry systems will be located in an easily accessible area. Dry pipe hose stations (Class I) will be provided for the tipping floor. The hose valves for the charging floor hose stations will be located in the boiler structure and be provided with either floor or wall stands for manual operation from the charging floor. The turbine generator area will be provided with a minimum of two hose stations per floor. The grizzly building, ash loadout building, CEM enclosure, and extension of the cooling tower will be protected by exterior yard hydrants unless interior hose stations are required by local code.

Hose stations on the firing aisle and the charging floor will be located such that they have access to the boiler platforms. Where required by local code a hose hydrant will be provided on the roof of the building and will terminate in a two-way 2 ½ inch hose connection. The main control valve for the roof hydrant will be located as close to the roof access as practical.

Automatic sprinkler system and deluge water spray systems will be provided in high fire hazard areas or as required by code which ever is more stringent. Systems will be designed in accordance with the requirements of NFPA-13, NFPA-15, NFPA-214 and NFPA-850.

Yard transformer(s) containing less than 5,000 gallons, but greater than 500 gallons, will be separated from each other and from other structures by a minimum of 25 feet. Yard transformers containing over 5,000 gallons will be separated from each other and from other structures by a minimum of 50 feet. The requirements of NFPA 850 will also be met. If these separation criteria cannot be met, firewall(s) will be installed in accordance with NFPA 850.

In addition, a yard hydrant will be located within 150 feet of the transformer(s).

Portable fire extinguishers will be provided throughout the expanded facility in accordance with NFPA-10.

The refuse pit will be protected by oscillating monitor nozzles with manual overrides (minimum of two) located on the charging floor. The nozzles will be located to provide complete coverage of all pit areas with at least two (2) streams operating simultaneously. The nozzles will be located so that they can discharge vertically downward directly into the refuse pit. The monitor nozzle isolation valves will be located in a heated area and provided with floor stands for manual operation from the charging floor. Drain valves will be located in an easily accessible area.

Manual smoke and heat vents will be provided in those areas where required by the local code.

XII. The Design for Access Control, and Fencing.

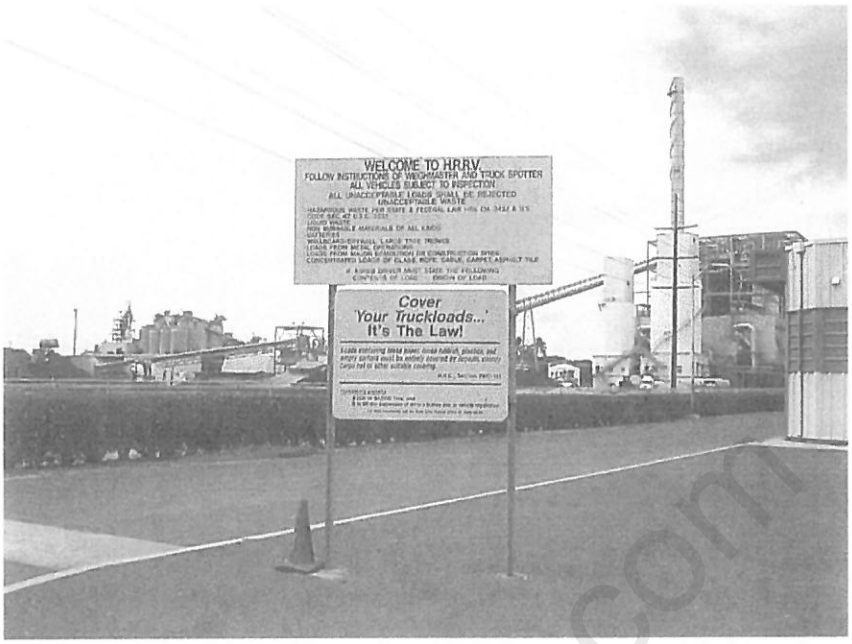
A metal wire fence surrounds the entire perimeter of the facility. This prevents public access and unauthorized personnel from simply walking on to the facility grounds.

There is only one entrance to the facility. All vehicles must enter through this roadway. In addition during non-duty hours, the front gate is closed to provide security. During the waste receiving hours, the scalehouse attendant has a clear view of the front gate and provides another passive security measure. A guard station is located near the front entrance to provide additional security if necessary.

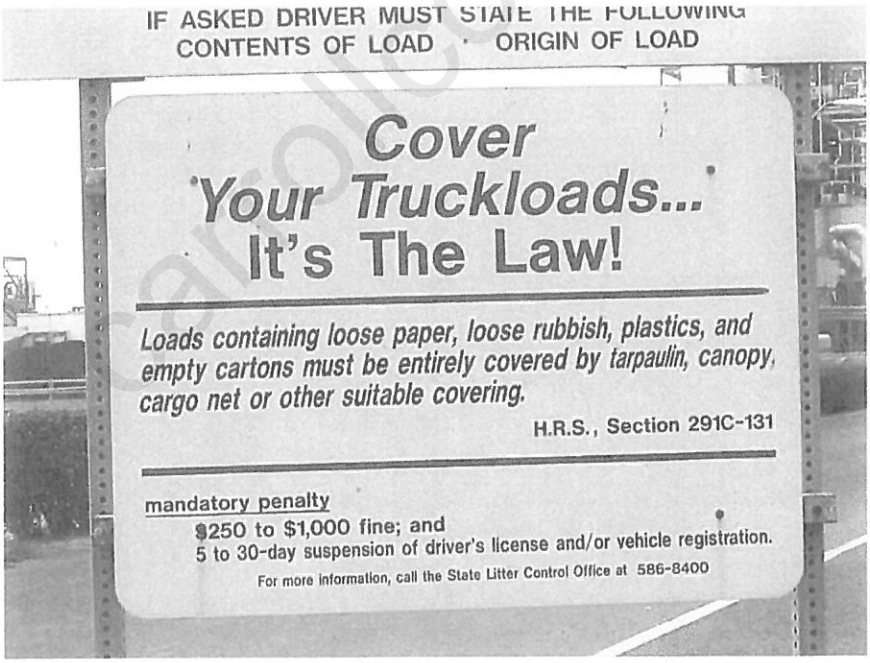
Vehicular traffic within the facility is controlled by traffic stop signs, speed limit signs, speed bumps and individual observations. If a hauler is caught speeding, the driver's license is noted and the incident is reported to the hauling company. Disregard to the warnings could lead to a ban of the driver from the facility.

XIII. Copy of Posted Signs

This is sign is at the entrance of the facility.



This sign is posted in front of the scalehouse.



Enlarged photo of the sign in front of the scalehouse.

Enlarged photo of the sign in front of the scalehouse.

XIV. Discussion on the Type of Operational Records to be Maintained.

The facility maintains records of all vehicles that tip their waste at the facility. Information includes the hauler's name, weight of the load, identification number and time of day the load was tipped. These types of records are typical information that the weighmasters record on days that MSW is received at the facility.

Combined ash, RDF process residue and unacceptable wastes are also scaled through the weighmasters and records of the weights of these materials are also maintained.

The RDF waste processing facility and Mass Burn control room operators maintain a log of all events that take place during their shift. In addition, the control operators maintain a log of key operational process data.

ADDENDUM

Operations and Maintenance Plan (OMP) for the Handling, Storage, and Combustion of Mechanically Dewatered Sewage Sludge (Bio-Solids)

Purpose

This plan is established for the purpose of providing information related to the handling, storage, and combustion of bio-solids at the HPOWER waste to energy facility (WTE). The combustion of the bio-solids will take place as a mixture along with other municipal solid waste (MSW). MWC No. 3 is authorized to combust bio-solids in the amount of up to 10% of the municipal solid waste combusted with loading rates on an calculated (i.e., dry) basis not to exceed 100 TPD or 30,000 TPY on a 12 month rolling basis. It is intended that the information provided by this plan establishes the best management practices for the activities mentioned above.

It is expected that employees will not be in direct contact with bio-solids. However, on occasion it may be necessary to perform some clean-up and maintenance activities such as unplugging or removing and cleaning equipment for maintenance. General rules and procedures for using personal protective equipment and practicing good hygiene should be followed and such practices are included in Attachment 2 of this training plan.

Definition of Bio-solids

"**Bio-solids**" means the semi-solid (30% to 40% solid) digested residue generated during the treatment of domestic wastewater in a domestic wastewater treatment facility, formerly known as "domestic wastewater residuals" or "residuals." Not included is the treated effluent or reclaimed water from a domestic wastewater treatment plant. Also not included are solids removed from pump stations and lift stations, screenings and grit removed from the preliminary treatment components of domestic wastewater treatment facilities, other solids as defined in subsection 62-640.200(31), F.A.C., and ash generated during the incineration of bio-solids. Bio-solids include products and treated material from bio-solids treatment facilities and septage management facilities regulated by the Department. (Defined by Rule 62-640.200(6), F.A.C.)

Note: The WTE facility is permitted to combust "Bio-solids", not "Liquid Bio-solids". The difference is the amount of moisture content. Liquid bio-solids means any bio-solids that are less than 30% solids by weight, or that are determined to contain free liquids as defined by Method 9095B (Paint Filter Liquids Test). Generally, the bio-solids brought to the WTE facility shall have no 'free-flowing' liquid. If the bio-solids have free-flowing liquid, a County or Covanta supervisor must be notified and the load will be rejected.

Weigh-In and Unloading

Each truckload of bio-solids will weigh in at the facility scale house. The scale house will establish and record the net weight and the source of the bio-solids. Generally, all bio-solids will be delivered to the WTE by City and County of Honolulu trucks.

Each truck will proceed to the MWC No. 3 north end of the tipping floor and reverse to the storage bin curbing. At the "Bi-Fold Door Local Control Panel" (B-FDLCP) if either of the high

level red lights is lit, there is insufficient available capacity in the storage bin to receive another load of bio-solids. If neither of the high level red lights is lit, then the truck driver will press the "Bi-Fold Door Open" button on the B-FDLCP to open the bi-fold access door to the storage bin. Then the driver will open the truck's tail gate and dump the load of bio-solids into the storage bin. Once the truck is emptied of bio-solids, the driver is responsible for ensuring no material has spilled. If material has spilled outside the bin, the driver is responsible for cleaning it up by shoveling the spilled material into the bin. The truck driver will then close the storage bin access door by pressing the "Bi-Fold Door Close" button on the B-FDLCP. It is understood that the driver may have to move the truck to 'jar' any 'sticking' bio-solids from the trailer but must be careful that the truck's bumper and bed clear the curb before doing so. Additionally, if the driver needs to sweep out any remaining bio-solids from the floor of the trailer, this should be performed so that the material is discharged into the storage bin. The driver will be responsible for shoveling up and placing any spilled material into the storage bin. Water shall **not** be used to clean up any spilled material.

Clean-Up of Tipping Floor (if required)
The tipping floor spotter will inspect the area where the bio-solids was unloaded. If there is any residual bio-solids material on the tipping floor, the driver will shovel it into the storage bin.

Mixing and Charging Bio-solids
Once the bio-solids material is in the storage bin, the material is pumped to the distribution header. A very small amount of water is injected into the piping as a lubricator to help move the bio-solids to the distribution header where 18 nozzles alternately inject the bio-solids into the feed chute while co firing MSW.

Sludge Spill
Any spill would likely occur at the storage bin or in the sewage sludge building enclosure. For the tipping floor, the spilled material would be shoveled into the storage bin. Any spillage in the sewage sludge building shall be shoveled up, placed into a container and taken up to the tipping floor to be dumped into the storage bin. Typically water should not be used to clean up the water since it will only make it a slimy mess. Once the material is cleaned up, as a last step the floor can be hosed down with water into the floor drains from which the waste water will be pumped into a storage tank for proper offsite disposal.

Any spill area that may involve equipment above the floor shall be disinfected, especially in areas where workers are likely to make contact with their hands. (Please refer to the Plant Operating Procedure Sludge Processing Unit, Section 5.2.4)

Equipment Maintenance
Equipment routinely exposed to waste could contain materials contaminated with sewage sludge. Maintenance of this equipment requires personnel to dislodge waste build-up before repair. (Please refer to the Plant Operating Procedure Sludge Processing Unit, Section 5.2.5)

Leather gloves with a disposable nitrile liner, or gloves which are more puncture resistant shall be worn for this evolution and whenever direct contact with waste is possible. Any PPE that is used for refuse/sludge cleaning shall be either disposed of or washed appropriately.

Forced Shutdown due to malfunctions during combustion of MSW/Bio-solids

Upon a forced shutdown, it is not possible nor is it necessary to clear the digested sewage sludge from the feed piping to the boiler or injection header. However, it is necessary to relieve the pressure in the feed piping by running one of the sludge pumps and associated screw feeder in reverse. When the pressure gauges show zero psig, the pump and associated screw feeder can be stopped.

When the MSW is run out of the feed chute, this process will also remove any remaining sludge from the feed chute.

During the forced shutdown, no bio-solids shall be received. If any trucks delivering it show up at the facility they shall be rejected and turned away.

Planned / Scheduled Shutdown during combustion of MSW/Bio-solids

Since it will take up to a day (24 hours) or more to empty the storage bin of bio-solids, it is recommended to stop the delivery of bio-solids 36 hours prior to shutting the boiler down. This time frame will provide time to empty the storage bin of bio-solids. There will still be bio-solids (digested sewage sludge) in the feed piping and injection header. It is not necessary to clear the bio-solids from these parts. However, it is necessary to relieve the pressure in them by running one of the sludge pumps and associated screw feeder in reverse. When the pressure gauges show zero psig, the pump and associated screw feeder can be stopped. Then the high point vent on the feed piping shall be opened. At the end of the outage, it must be remembered to close this vent before restarting the system to inject bio-solids into the feed chute.

When the MSW is run out of the feed chute, this process will also remove any remaining sludge from the feed chute.

During the outage, no bio-solids shall be received. If any trucks delivering it show up at the facility they shall be rejected and turned away.

Hygiene and Exposure

These issues are covered in "Plant Operating Procedures for the Mass Burn Facility Sludge Processing Unit."

Attachment 1

HPOWER Procedure for Processing Bio-solids

1) Scale house will notify the control room that a bio-solids delivery is on site at the Scale house.
2) All trucks entering the facility should be free from leakage. Any leakage observed on arrival or departure will be communicated in writing to the chief engineer and the load shall be rejected.
3) The truck driver will then proceed to the north end of the Tipping Floor for material discharge.
4) The Control Room Operator/Spotter will also maintain a log that will indicate if there were any problems unloading the bio-solids.
5) After the bio-solids have been deposited into the storage bin and the boiler is combusting MSW, the control room operator will begin the pump and begin conveyance of the bio-solids to the feed chute nozzles to enable co-combustion with MSW. Bio-solids will not be placed on the tipping floor.
6) Drivers will be instructed to prevent their truck tires from coming into contact with the sludge and tracking it across the tipping floor.
7) Bio-solids will not be fed into any boiler/unit **8 hours** prior to scheduled shutdown, or
8) Bio-solids will not be fed into any boiler/unit where a grate bar problem is known to exist or a pressure part leak is known to exist.
9) Bio-solids will not be fed into a boiler until it has been on line for at least **8 hours**.
10) Drivers will attempt to dump as much Bio-solids into the storage bin as possible. Floor and curb areas of the dump site will be cleared and cleaned by the driver as soon as the truck has finished dumping.
11) Anyone working with and around bio-solids should exercise proper hygiene by washing thoroughly with soap and water and avoid touching face, mouth, eyes, nose, genitalia, or open sores and cuts.

ADDENDUM

Operations and Maintenance Plan (OMP) for Processing White Goods

Purpose

The purpose of this plan is to manage the activities required for processing white goods, protect the safety and health of personnel and the local community, and to maintain compliance with Section 608 of the Clean Air Act, Title 40, Code of Federal Regulations, Part 82, *Protection of Environment*, Subpart F.

Definitions

The following definitions are for the sole purpose of this OMP, a unit is defined as follows:

- Refrigerant-containing unit: any white good that contains Class I or Class II ozone-depleting refrigerant.
- Non-refrigerant-containing unit: white good that does not contain refrigerants or other internal coolants.
- White goods: appliances such as stoves, dishwashers, refrigerators, freezers, clothes washing machines, clothes dryers, room air conditioners (including window and mobile air conditioners), dehumidifiers, heat pumps, under the counter ice makers, drinking water coolers, hot water heaters, and other domestic and commercial large appliances.
- Bulky items: carpet, furniture, mattresses, etc.

Identification and Qualifications

Solar Building refrigerant recovery technicians are required to obtain and maintain certification compliant with Section 608 of the Clean Air Act Amendments as required per 40 Code of Federal Regulations Part 82, *Protection of Environment*, Subpart F.

For the purpose of this OMP Addendum, a certified technician is any individual who performs refrigerant recovery on any refrigerated white goods or performs any type of function that could potentially release ozone-depleting substances.

General Description of Solar Building

The Solar Building will be the primary facility for receiving and processing white goods, and has been designed to be approximately 140,000 square feet in area. Inside the Solar Building, two concrete bunkers with a combined capacity of 260 cubic yards will be placed adjacent to the receiving bay for stored white goods, and there will be an area designated to hold a 40 cubic yard

container. Refrigerant reclamation systems will be located within the white goods processing area.

Delivery of bulky items to the Solar Building is also anticipated. The Solar Building white goods and bulky item receiving area will be approximately 80,000 square feet and will accept approximately 55,000 units per year of white goods and 100,000 tons per year of bulky items. In a worst case scenario, there is enough storage in the building for approximately three days, or 450 units. There will be regular deliveries to the off-site recycler, it is not anticipated that units will be stored onsite for longer than three days.

The HPOWER Maintenance Mechanics and Instrumentation/Electrical Technicians provide 24-hour support to existing facilities, and will provide support for the Solar Building in the event of needed emergency repairs. General and preventive maintenance will be conducted on the equipment and refrigerant cylinders on a routine basis. The PeopleSoft computer maintenance tracking system is used to track preventive maintenance requirements. In addition, outside contractors may be hired to augment the facility maintenance efforts if necessary.

Recovery equipment and refrigerant cylinders will be clean and leak free. The certified service technicians will maintain all equipment and refrigerant cylinders in good working condition. If the equipment or refrigerant cylinders are not functioning or are not in good working condition or need to be repaired, it is the responsibility of the certified service technician to report it to the Site Supervisor and .

Sources and Types of Waste

The Solar Building is expected to accept approximately 55,000 units per year of white goods and 100,000 tons per year of bulky items. White goods and bulky items will be delivered to the Solar Building by City and County of Honolulu (CCH) route collection vehicles and third party contracted haulers with the CCH. All delivery vehicles will be weighted in the Solar Building scale prior to and after drop off to calculate the weight of materials delivered.

At the inbound scale that each truck passes over, a clearly visible notice will be posted notifying drivers that Unacceptable and Hazardous Waste is prohibited and clear warnings of potential hauler bans and other legal penalties for violators. All personnel directly involved in the handling of incoming white goods and bulky items will be trained to visually identify, and instructed on how to deal with, unacceptable and/or potentially hazardous wastes. Whenever facility staff identifies a hauler with unacceptable or suspected hazardous waste, a report will be completed identifying the hauler and unacceptable material.

White goods, other appliances and bulky items, will be received, organized and sorted in the Solar Building. Items received at this facility will be segregated as refrigerant-containing white goods, non-refrigerant-containing white goods and bulky items. Prior to further processing, refrigerant will be recovered from any unit containing ozone-depleting substances by certified trained technicians. Refrigerant will be collected into a certified collection cylinder, following the manufacturer's recommendations and/or EPA guidance, and the quantity of refrigerant recovered will be recorded. All records will be maintained for a minimum of five years.

If the unit contains any oil, the certified technician will drain the oil from the unit and deposit it in an approved used oil storage container.

Certified technicians, equipment handlers and operators will be trained on evaluating and recognizing white goods potentially containing hazardous components such as mercury-containing switches, PCB-containing capacitors, etc. In the event that these types of white goods are identified, they will be segregated and stored in an identified location within the Solar Building and properly handled prior to disposal.

After processing in the Solar Building, white goods will be shipped to an off-site recycler for further metal reclamation. Combustible bulky items will be taken to the Mass Burn Unit where they will be shredded by the bulky waste shredder and fed into the Mass Burn Unit. If the bulky items are noncombustible and are metallic, they will be taken to the metal recycler for recycling.

Delivery of Materials to Solar Building

All vehicles delivering waste to the Facility are identified by vehicle license number. A computer database contains specific information required for tracking and billing purposes. The weighmaster inputs the vehicle identification which initiates the weighment and billing systems; and the incoming and outgoing weights are documented in the system. White goods, other appliances and bulky items, will be received, organized and sorted in the Solar Building.

As indicated on Figure 20, white goods and non-combustible bulky items will be transported to a permitted recycler for further processing; and combustible bulky items will be transported to HPOWER facility for energy recovery in the Mass Burn Unit (MBU). Vehicles transporting white goods and/or bulky items from the Solar Building will be weighed to document the weight and disposition of material being shipped off-Site, which will be recorded in the weighment system.

Description of Operational Procedures

Trucks delivering white goods and bulky items will access the Site through a single driveway at the terminus of Kaomi Loop, and will proceed directly to the scale for inbound weighing. All

vehicles entering the Solar Building Site will be identified by vehicle license plate number. A computer database maintained at the scale house contains specific information required identifying the transporter and material source.

The weighmaster inputs the vehicle identification which initiates the weighment and automatic billing systems. From the scale house, incoming trucks are directed inside the Solar Building and to a drop off location. A spotter will be inside the building to direct trucks to the appropriate locations for unloading. Personnel in the Solar Building will inspect the items being deposited to identify potentially unacceptable white goods or other materials, and segregate refrigerant-containing white goods, non-refrigerant-containing white goods and bulky items into their defined storage areas.

The refrigerant-containing units will be evaluated by the certified refrigerant recovery technician, and drained of the refrigerant using EPA-certified recovery equipment into certified containers. Any other regulated materials (switches, capacitors, etc.) will be removed and stored in the designated storage area. The technician will document the type of white good, refrigerant type and quantity, other materials removed, date, time, and any other pertinent information. If the unit contains any oil, the certified technician will drain the oil into an approved container for recycling.

Used oils contaminated with CFCs or HCFCs will be stored and managed separately until a waste determination is made by a qualified facility employee. If any refrigerant removed is contaminated by other refrigerants and cannot be reclaimed, it will be disposed of as hazardous waste on a case-by-case basis. In the event that hazardous waste is generated, it will be managed according to all applicable state, federal, and local regulations.

Once the refrigerated unit is evaluated, oils, refrigerants, and components removed, the unit will be tagged with a label certifying the removal of refrigerant (ready for scrap), and stored in a designated area until shipped to a certified permitted recycler.

Non-refrigerant-containing white goods will be inspected by a technician to identify any potentially regulated materials (switches, capacitors, etc.). If parts requiring special disposal are identified, they will be removed and stored in the designated storage area, and the technician will document the type of white good, materials type and quantity removed, date, time, and any other pertinent information. After the unit has been inspected, it will be deposited in the designated storage area until being shipped to a certified permitted recycler.

Bulky items will be stored in a distinct area of the Solar Building, until transported to the MBU for recovery. Combustible bulky items will be taken to the MBU where they will be shredded by the bulky waste shredder and fed into the MBU or RDF. Noncombustible bulky items that are metallic will be segregated and shipped to the metal recycler.

The receiving and areas are designed to hold approximately three days storage of acceptable white goods and/or bulky items. A flow diagram of the Solar Building operations is provided as Figure 20.

Description of Type and Number of Equipment

Three (3) Bacharach Commercial Refrigerant Recovery Units and One (1) RefTec Universal Recovery Unit will be utilized in the Solar Building for refrigerant collection (final unit selection pending). Section will be amended upon final equipment selection. Attachment A; Refrigerant Recovery Process contains the description of equipment operational use.

Final Disposition of Recyclables and Waste

After processing in the Solar Building, white goods will be shipped to a permitted off-site recycler for further metal reclamation. Combustible bulky waste will be taken to the Mass Burn Unit where they will be shredded by the bulky waste shredder and fed into the Mass Burn Unit. Noncombustible metallic bulky items will be taken to the metal recycler for recycling.

Trucks transporting material off-Site will be weighed as they enter the Site (empty) and as they leave the Site (full) to document the quantity of material being transported. The weighmaster will also document the truck license plate, material type, disposal location, date and time.

Environmental Controls

The facility is regulated by several offices of the Hawaii Department of Health, (HDOH) Environmental Management Division offices. Covanta Honolulu Resource Recovery Venture (CHRRV) maintains compliance with the air pollution control, the underground injection control, the solid waste, and the national pollution discharge elimination system permits.

The Solar Building Site has been designed to have asphalt-paved ingress/egress roadways, and concrete floor in the portion of the Solar Building interior that will be utilized for white goods and/or bulky item storage and processing.

Refrigerants will be collected in designated areas utilizing EPA approved refrigerant recovery equipment, and redundant equipment will be available in the event of a breakdown. Several containment areas have been designed in the Solar Building to contain any liquids that may be released from equipment during processing.

Significant quantities of leachate are not anticipated to be generated; however, the Solar Building

will be equipped with sumps that will be used to collect inadvertent spills from inside the facility. In the event of an unplanned release, the storage tank would be utilized to control and contain the released product temporarily; the material would be sampled, and appropriately disposed or recycled.

Unpredictable oil spills from white goods processing may occur. The facility operations personnel are trained in Spill Prevention and Countermeasure Control (SPCC) and Stormwater Pollution Control Plan (SWPCP) procedures on an annual basis. Facility personnel are trained to contain any oil spills with oil absorbent material and to notify their supervisors of the spills. If necessary, spills are reported to the appropriate regulatory agency.

Facility's Drainage System

The Site is graded with a minimum 2-percent slope away from the Solar Building to prevent run-on. In order to minimize stormwater runoff from the Site, existing swales will be enhanced to direct stormwater to existing retention and/or infiltration areas on-site. During a severe rainfall event, stormwater from the site has the potential discharge via overland flow to the James Campbell Industrial Park stormwater collection system within Kaomi Loop, or to adjacent properties. The Solar Building and associated recycling operations will have its own, independent National Pollutant Discharge Elimination System (NPDES) permit.

Vector Control

White goods processing operations are conducted indoors, which minimizes debris from being blown about. A street sweeper and grounds crew will assist in managing debris that escapes from the Solar Building.

Good housekeeping practice is the primary means of vector and odor control. All departments are responsible for housekeeping in their work areas. If vectors (rats, mice, roaches, mosquitoes) become a problem, Solar Building personnel will notify their supervisor. Personnel need to identify the type of vector, location of the vector where it was a concern and times of the day when the vectors were seen. The supervisor will investigate to determine if the vectors are a problem. After confirming that the vectors are a problem, the supervisor will bring it to the attention to the chief or plant engineer. The chief/plant engineer or designee will work with the purchasing manager to contract a pest management specialist. Pest management specialists may conduct a one-time treatment or periodic treatment (weekly or monthly) as required.

The grounds keeping staff is primarily responsible for minimizing litter around the facility. The groundskeepers typically work Monday through Friday from 6:00 a.m. to 2:30 p.m. Their shift may change depend on the facility needs (e.g. outage support). The groundskeepers routinely

cover the entire existing facility once per shift using a groundskeeper checklist as a guide. The groundskeepers may be directed to clean up a specific area by the management staff as necessary.

Fire Prevention and Response Plan

An automatic sprinkler fire suppression system and electronic fire warning alarm system will be installed on the inside of the Solar Building. In addition, portable fire extinguishers will be located at strategic locations around the Solar Building. The fire sprinkler system and extinguishers will be inspected annually by an outside contractor. Inspection of the fire sprinkler system includes flowing water through the system and monitoring the alarm station. The maintenance department will conduct a monthly sprinkler flow test, and Solar Building personnel will inspect the fire extinguishers in their work areas on a monthly basis at a minimum.

Design for Access Control, and Fencing

A chain-link fence currently surrounds the entire perimeter of the HPOWER facility and the Solar Building. The Chain-link fence prevents public access and unauthorized personnel from entering the facility grounds. Access to the Solar Building will be provided though vehicular gates at the terminus of Kaomi Loop.

A copy of a posted sign that displays owner or operator of the facility, the hours of operation and a contact in case of emergency to be provided upon final design.

Recordkeeping

All material delivered to the Solar Building Site will be documented, and all documentation will be maintained for a minimum of five years. Information collected includes the hauler's name, weight of the load, identification number and time of day the load. Upon unloading in the Solar Building, additional information for the load will be collected including material type (white goods or bulky waste), if the material contains regulated parts and/or refrigerants.

During the in processing of units containing refrigerant, the certified technician will be required to complete a Refrigerant Recovery Log which documents information pertaining to the unit being processed as required per EPA Section 608, *National Recycling and Emission Reduction Program regulations*. Information to be collected includes: appliance type, the type of refrigerant contained, the amount of refrigerant that was collected, and date and time of processing and refrigerant recovery. In addition, the facility will maintain, at all times, record of certified technician's EPA certification and EPA compliance of recovery equipment.

Attachment A
Refrigerant Recovery Process

This document is intended specifically to outline the procedure of refrigerant recovery activities performed by certified technicians.

- All certified technicians are expected to have full knowledge of recovery procedures as stated in section 608 of the Clean Air Act Amendments National Recycling and Emission Reduction Program and subsequent EPA Regulations and Standards.
- Only certified technicians shall perform refrigerant recovery in accordance to certification type obtained.
- Always refer back to the manufacturer's specifications manual for further instruction.

Step 1:	Record initial required information on Refrigerant Recovery Log
Step 2:	If potential hazardous component are identified during processing of unit, components shall be removed, segregated and stored in identified location within the Solar Building and properly handled prior to disposal
Step 3:	If the unit being processed contains any oil, the unit shall be drained and residue oil shall be deposited in an approved waste-oil storage container
Step 4:	Select appropriate pressure rated recovery cylinder for the refrigerant being recovered from the unit
Step 5:	Ensure the refrigerant recovery equipment is rated for the refrigerant being recovered. Equipment includes, but is not limited to the following: • Manifold gauge set • Hoses • Connectors • Recovery Cylinder
Step 6:	Ensure refrigerant recovery equipment is in functional order • If refrigerant recovery equipment appears to be damaged, report to Facility Manager immediately
Step 7:	Inspect recovery cylinder and valve for signs of damage such as corrosion or dents prior to use • Recovery cylinder must be within the 5 year certification date • If recovery cylinder is damaged, report to Facility Manager immediately

Step 8:	Weight empty recovery cylinder on a scale
Step 9:	Recovery cylinder must be labeled with refrigerant type that it currently contains or will contain after recovery is complete
Step 10:	Monitor pressure during refrigerant recovery, not to exceed the recommended recovery cylinder service pressure • Maximum cylinder service pressure capacity is located on the neck of the cylinder
Step 11:	Monitor gross weight during refrigerant recovery • Cylinder must not be filled more than 80% liquid at 77°F • **CYLINDER SHOULD NEVER BE OVERFILLED**
Step 12:	Evacuate refrigerant based on evacuation levels specified by the EPA
Step 13:	If service pressure is reached, shut off valve immediately • If gross weight is reached, shut off valve immediately
Step 14:	When refrigerant recovery is complete, close cylinder valve
Step 15:	Record weight of filled cylinder
Step 16:	Record remaining information required in Refrigerant Recovery Log and submit to Facility Manager for recordkeeping
Step 17:	If any refrigerant removed is contaminated by other refrigerants and cannot be reclaimed, it shall be disposed of as hazardous waste on a case-by-case basis
Step 18:	Tag unit with a label certifying the removal of refrigerant (ready for scrap)
Step 19:	Stored unit in a designated area until shipped to a certified recycler
Step 20:	Return refrigerant recovery equipment is returned to storing location • If refrigerant recovery equipment appears to be damaged, report to Facility Manager immediately

BACHARACH
The Measurable Difference

Commercial Recovery Machine

FM3700

Features

- 3/8" ports for faster, high-volume refrigerant recovery
- Recovers ALL commonly used refrigerants, including R-410A (Puron™)
- 550 PSI high pressure cut-off, high pressure gauges
- High performance compressor
- Rugged and reliable

FM3700 Heavy Duty Commercial Recovery Unit

The FM3700 is designed for use in commercial refrigerant recovery applications. The 3700's industrial strength, one horsepower, twin piston compressor enables the unit to recover refrigerant vapor at up to four pounds per minute and liquid up to eight pounds per minute, directly through the compressor.

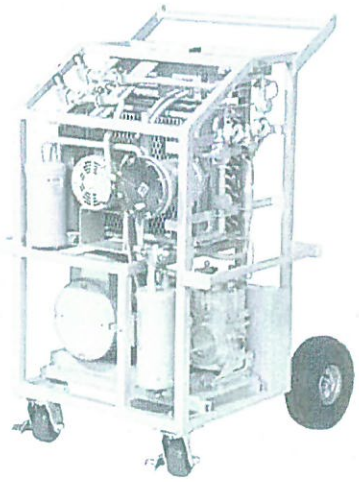
SPECIFICATIONS	
Refrigerants	All Refrigerants except R-11, R-113 and R-123
Power Source	115 VAC 50/60 Hz, 230 VAC 50/60 Hz, 100 VAC 50/60 Hz
Compressor	1 horsepower twin piston, high performance, oil-less
Vacuum Rating	13" Hg+
High Pressure Limit	550 PSI
Recovery Rate	.50 - 4.0 lbs./min. vapor, 8.0 lbs./min. liquid
Auto 80% Tank Shut Off	Optional
Self Purging System	No hose changes
Weight	47 lbs.
Dimensions	12" x 14.25" x 8.75"

ORDERING INFORMATION	
PART NUMBER	**DESCRIPTION**
2000-3700	FM3700 Commercial Recovery Unit
2002-0081	80% Shut-Off option

Headquarters: 621 Hunt Valley Circle, New Kensington, PA 15068 U.S.A.
Phone: 1-800-736-4666 Fax: 1-724-334-5001 Email: help@MyBacharach.com Website: www.MyBacharach.com

RefTec
INTERNATIONAL SYSTEMS Inc.

ALLVAC Universal Recovery Unit



Universal High & Low Pressure Recovery

Combines capabilities of Evac Commercial & Lovac systems to offer great recovery rates on R11, R12, R22, R113, R123, R134a, R404, R500, R502, R410a & other high pressure refrigerants or blends. Rugged open drive compressor provides years of reliable service, even on refrigerants heavily contaminated with oil, air, moisture, & acids. Switching between refrigerants simply involves oil & filter changes along with evacuation of the unit. Air/water cooled option incorporates a water cooled plate exchanger in line with the air cooled condenser. This model may operate with or without condensing water.

Push/Pull Rates (R22)	325-lbs/min
Vapor Rates (R22)	6.0-lbs/min
Push/Pull Rates (R11)	100-lbs/min
Vapor Rates (R11)	0.66-lbs/min
Connections	¾" flare
Dimensions - Inches: l x w x h	32" x 29" x 45"
Float Connection	3-pin BH
Low Pressure Switch	15" Hg or 29" Hg

Included with purchase

One 48-cubic inch drier core
12-ft tank float cable
(2) 3/4"-5/8" & 5/8-1/2" fittings
50-ft power cord for controls
50-ft power cord for recovery unit
Two ¾" x 10ft & One ¾" x 20ft recovery hoses w/ ball valves

Order number

ARH-A-230-3-E	220-240V,50/60Hz,3Ph,3Hp,20A	Electromechanical Controls,	Air Cooled	275 lbs
ARH-A-240-1-E	220-240V,50/60Hz,1Ph,3Hp,30A	Electromechanical Controls,	Air Cooled	275 lbs
ARH-A-460-3-E	360-575V,50/60Hz,3Ph,3Hp,15A	Electromechanical Controls ,	Air Cooled	275 lbs
ARH-A-D24-1-E	240/460V 50/60Hz,1PH,3Hp,30A	Electromechanical Controls,	Air Cooled	285 lbs
ARH-W-230-3-E	220-240V,50/60Hz,3Ph,3Hp,20A	Electromechanical Controls,	Air/Water Cooled	290 lbs
ARH-W-240-1-E	220-240V,50/60Hz,1Ph,3Hp,30A	Electromechanical Controls,	Air/Water Cooled	290 lbs
ARH-W-460-3-E	360-575V,50/60Hz,3Ph,3Hp,15A	Electromechanical Controls,	Air/Water Cooled	290 lbs
ARH-W-D24-1-E	240/460V,50/60Hz,1Ph,3Hp,30A	Electromechanical Controls,	Air/Water Cooled	300 lbs

Reftec International Systems, llc.
6950 112th Circle
Largo, Fl. 33773

Phone) 800-214-4883
Fax) 727-827-2882
Web) www.reftec.com

Refrigerant Management Plan

Purpose

The purpose of this Refrigerant Management Plan (RMP) is to establish guidelines in accordance with Section 608 of the Clean Air Act, Title 40, Code of Federal Regulations (CFR), Part 82, *Protection of Environment*, Subpart F, to be followed when a unit containing ozone depleting refrigerants is processed in the Solar Building.

Scope

This RMP applies to all employees or outside contractors who will be working on the property and processing white goods containing ozone depleting refrigerants. The facility will strictly recover, not recycle, refrigerants from white goods.

Definitions

The following definitions are for the sole purpose of this RMP:

Certified Technician: is defined as any individual who performs refrigerant recovery on any refrigerant-containing unit or performs any type of function that could potentially release ozone-depleting substances.

Class I ozone-depleting substance: is defined as any controlled substance designated as class I in 40 CFR part 82, appendix A to subpart A.

Class II ozone-depleting substance: is defined as any controlled substance designated as class II in 40 CFR part 82, appendix B to subpart A.

Refrigerant-Containing Unit: is defined as any white good that contains Class I or Class II ozone-depleting refrigerant.

Refrigerant Recovery: is defined as the removal of refrigerant from a refrigerant-containing unit and storing the refrigerant in an external certified cylinder.

Refrigerant Recovery Equipment: Is defined as Environmental Protection Agency (EPA) certified recovery equipment that removes ozone-depleting substances from a refrigerant-containing unit in accordance with in 40 CFR, Part 82.158, *Standards for Recycling and Recovery Equipment.*

Responsibilities

Solar Building and HPOWER Operations Management:

- Must comply with EPA Section 608 National Recycling and Emission Reduction Program regulations
- Shall provide certified technicians with fully operational refrigerant recovery equipment that is in good working order, and clean, leak free refrigerant collection/storage cylinders.
    - Preventive maintenance will be performed on refrigerant recovery equipment, and refrigerant cylinders as required.
- Will train certified technicians on evaluating and recognizing units potentially containing hazardous components such as mercury-containing switches, PCB-containing capacitors, etc.
    - In the event that these types of units are identified, they will be segregated and stored in an identified location within the Solar Building and properly handled prior to disposal.
- Will provide training on the requirements of this policy to all certified technicians who are involved with refrigerant recovery.
- Will maintain documents and records for the facility.
- Will inspect the facility on recurring basis to ensure compliance.

Certified Technician:

- Are responsible to maintain EPA Certification.
- Will comply with Section 608 recovery requirements.
- Will not mix refrigerants of different types with one another.
    - If any refrigerant removed is contaminated by other refrigerants (and/or other types of fluids or waste) and cannot be reclaimed, it will be disposed of as hazardous waste on a case-by-case basis.
- If a unit contains any oil, the certified technician will drain the oil from the unit and deposit it in an approved used oil containment for recycling.
    - Used oils contaminated with CFCs or HCFCs will be stored and provided to the recovery company separately, but are not hazardous as long as they are not combined with other waste.
- If recovery equipment or refrigerant cylinders are not functioning or are not in good working condition or need to be repaired, it is the responsibility of the certified technician to give notification to the Site Supervisor.

EPA Technician Certification:

Per the Clean Air Act Amendments Section 608, the four types of certifications for stationary equipment are as follows:

Certification Level	Service Type
Type I	Small Units (under 5 Lbs.)
Type II	High Pressure Equipment
Type III	Low Pressure Equipment
Type IV Universal	All Types

All employee technicians will be certified as Type IV Universal. Copies of their certifications are included in Attachment B.

Evacuation Requirements:

Certified technicians must evacuate refrigerant-containing units as per EPA Section 608 Refrigerant Recycling Rule.

Type of air-conditioning or refrigeration equipment with which recovery or recycling machine is intended to be used	Refrigerant Type	Inches of Vacuum (relative to standard atmospheric pressure of 29.9 inches Hg)	
		Before Nov. 15, 1993	On or after Nov. 15, 1993
Very high pressure equipment	CFC-13 CFC-503	0	0
High pressure equipment, or isolated component of such equipment, normally containing less than 200 lbs. of refrigerant	CFC-12 CFC-500 CFC-502 CFC-114	4	10
High pressure equipment, or isolated component of such equipment, normally containing 200 lbs. or more of refrigerant	CFC-12 CFC-500 CFC-502 CFC-114	4	15
Appliance or isolated component of such appliance, normally containing less than 200 lbs. of refrigerant.	HCFC-22	0	0

Type of air-conditioning or refrigeration equipment with which recovery or recycling machine is intended to be used	Refrigerant Type	Inches of Vacuum (relative to standard atmospheric pressure of 29.9 inches Hg)	
		Before Nov. 15, 1993	On or after Nov. 15, 1993
Appliance or isolated component of such appliance, normally containing 200 lbs. or more of refrigerant.	HCFC-22	4	10
Low pressure equipment	CFC-11 HCFC-123	25	25mm Hg absolute

Refrigerants must be removed from refrigerant-containing unit prior to further processing and recycling. Once refrigerant and any other oil/fluid is drained, the certified technician must tag the unit with a label certifying the removal of refrigerant, and indicating the unit is ready for scrap. The units will be stored in a designated area until shipped to an off-site permitted recycler for further metals reclamation.

Inventory of Recovered Refrigerant

Facility will conduct inspection and document inventory of recovered refrigerant in the Solar Building at the following times:

- Quarterly– Review refrigerant inventory every 4 months for accuracy and completeness.
- Annually – Perform a thorough physical audit of refrigerants, and reconcile any discrepancies between the quantities disposed and quantities inventoried.

The facility inspection checklist is included in Attachment D.

Storage of Recovered Refrigerant

In accordance with the National Fire Protection Association (NFPA) codes and standards, recovered refrigerant stored shall be secured and accessible only by certified technicians only. In addition, refrigerant recovery storage area shall have adequate ventilation.

Disposal of Refrigerant and Recovery Equipment

In the unlikely and rare occasion that refrigerant-containing units, recovery equipment and refrigerant cylinders must be disposed of as opposed to recycled, the facility will

properly designate and dispose per the "Safe Disposal Requirements of EPA Section 608."

Record keeping

- Certified technicians must document information pertaining to the unit being processed as required per EPA Section 608, National Recycling and Emission Reduction Program regulations.
    - Refrigeration Recovery Log (Attachment A) for each refrigerant-containing unit processed.
    - Information to be collected includes: appliance type, the type of refrigerant contained, the amount of refrigerant that was collected, and date and time of processing and refrigerant recovery
- The Facility must keep records of all materials sent for reclamation documenting the names and addresses of the reclaimer, and the quantity of material sent to them for reclamation.
    - Must maintain service records on recovery equipment and refrigerant cylinders.
    - Must maintain proof of purchase of any new recovery equipment or refrigerant cylinders.
    - Must maintain a copy of each technician's EPA certification.
    - All required records will be maintained for a minimum of five (5) years.

References:

- Air Pollution and the Clean Air Act
- Stratospheric Ozone Protection, Title VI, EPA
- 40 CFR, Part 82
- Ozone Layer Protection
- Section 608 of the Clean Air Act Fact Sheet

Attachment A

REFRIGERANT RECOVERY LOG

This document is intended specifically to outline the procedure of documenting any refrigerant recovery activity performed by certified technicians.

- All certified technicians that are conducting refrigerant recovery operations are required to complete this form.
- All certified technicians are expected to have full knowledge of recovery procedures as stated in section 608 of the Clean Air Act Amendments National Recycling and Emission Reduction Program and subsequent EPA Regulations and Standards.

The following rules apply:

1. Only certified technicians will perform any refrigerant recovery.
2. Certified technician will only perform refrigerant recovery as assigned by the certification type.
3. Certified technician performing refrigerant recovery must complete this form.
4. This form is to be kept onsite for recordkeeping following completion of refrigerant recovery.

Technician Name:	Certification Type & ID No.	Today's Date:

Total charge as listed on equipment nameplate:	Equipment Make:	Equipment Model:	Serial Number:

Tank Number:	Weight Including Tank:	Type of Equipment:
		☐ High Pressure ☐ Low Pressure

Type of Refrigerant in System:	Amount of Refrigerant Removed:	
	Lbs.:	Oz:

Please provide description of procedure, vacuum achieved and oil disposal procedure

Attachment B

Employee Certifications

Note: This attachment will be completed at a later date. A revised plan will be forthcoming prior to operations starting.

Attachment C

Facility Notification as a Recovery Facility

Note: This attachment will be completed at a later date. A revised plan will be forthcoming prior to operations starting.

Attachment D

Facility Inspection Checklist

Refrigerant Recovery Operations and Management – Inspection Checklist	
Date:	Time:
Inspector's Name:	Signature:

Inspection Items	Yes	No	Comments
1. Are operations and processes following procedures according to the RMP?			
2. Are there any process efficiencies to note, that would benefit the operations?			
3. Are there any systems with a refrigerant full charge of 50 pounds or greater not in the inventory or documented?			
4. Are refrigerant purchases, system inspections and maintenance records available for the last 5 years?			
5. Are all refrigerant MSDS/SDS readily available and current?			
6. Is refrigerant systems operation and maintenance restricted to certified and trained technicians, mechanics, or supervised personnel? • Verify all technicians have 608/609 Certifications			
7. Are unused and used refrigerant collected and stored for disposal according to installation requirements? - Containers are labeled correctly - Containers are secured tightly and upright			
8. Are contaminated items produced in the recovery process collected, stored and disposed of properly? - Check Hazardous Waste Logs			
9. Are proper procedures for recovery and/or replacement of refrigerant being followed?			
10. Are all inspections, leak tests and system maintenance being logged?			

Inspection Items	Yes	No	Comments
11. Is compressor oil being collected and disposed of properly?			
12. Are refrigerant leaks being handled via emergency response procedures?			
13. Are spill kits kept near potential spill hazardous areas?			
14. Are fire extinguishers kept near potential flammable material?			
15. Is PPE kept near potential health hazard areas?			
16. Is proper signage posted such as "No Smoking" and "Inhalation Hazard"?			

ADDITIONAL COMMENTS:

CORRECTIVE ACTION TAKEN: