CITY AND COUNTY OF HONOLULU
MAYOR’S ADVISORY COMMITTEE ON LANDFILL SITE SELECTION
FASI MUNICIPAL BUILDING 9TH FLOOR – DDC CONF. ROOM
MEETING NO. 3
THURSDAY, MARCH 10, 2011
9:00 A.M. - 12:00 P.M.

AGENDA

I. WELCOME AND INTRODUCTION
II. REVIEW PREVIOUS MEETINGS
III. PUBLIC COMMENTS
IV. PRIOR ALTERNATIVE LANDFILL SITES EVALUATED BY CITY
V. REVIEW CRITERIA FOR EVALUATION OF LANDFILLS
VI. NEXT STEPS, THANK YOU, AND ADJOURNMENT
The following information was distributed to the Mayor’s Advisory Committee on March 10, 2011:

- Group Memory No. 2, Meeting of February 10, 2011
- Handout Materials:
  1. Siting Criteria for MSW and C&D Landfills
  2. Construction and Demolition (C&D) Debris Disposal Need Estimate
  3. Collection District of Origin MSW Going to the WGSL
  4. Landfill Area and Capacity
- Alternative Landfill Sites, Island of O‘ahu
- Sample Data Sheet Example
- Information Distributed by Solid Waste Facilities
  1. Schnitzer Steel Industries, Inc./Schnitzer Steel Hawai‘i Corporation
  2. H-POWER (Honolulu Program on Waste Energy Recovery)
  3. PVT Landfill Company, Ltd. (Info on CD)
Meeting No. 2  
(Field Visits)  
Group Memory  

Mayor’s Advisory Committee on Landfill Site Selection  
City and County of Honolulu  

February 10, 2011  

Attendance:  
Committee Members Present: David Arakawa, Tom Arizumi, John Goody, Joe Lapilio, Tesha Malama, Janice Marsters, Richard Poirier, George West  
Committee Members Absent: Bruce Anderson, David Cooper, John DeSoto, Chuck Prentiss  
Department of Environmental Services (ENV) Staff: Steve Serikaku  
Consultants: Brian Takeda, Gail Atwater  
Facilitator: Dee Dee Letts  

A short meeting was held at Kapolei Hale, prior to departure for a field visit to the Waimānalo Gulch Landfill, PVT Landfill, H-POWER, Schnitzer Steel, and RRR Recycling.  

Brian clarified the Committee’s tasks as follows:  

Regarding separate landfills for certain types of solid waste: The City is asking the Committee to consider alternative landfill sites that can accept three refuse streams: municipal solid waste, construction and demolition debris waste, and ash & residue. Reasons for this are (a) economies of scale from a single facility to handle all three waste streams; (b) the potential for significantly greater environmental impacts if multiple sites are used to handle separate waste streams; and (c) significant costs of developing a site for each waste stream.  

The City will be pursuing an extension of use of the Waimānalo Gulch Sanitary Landfill beyond 2012. However, that effort is not a part of the Committee’s charge by the Mayor.  

John Goody asked if the information requested at the first meeting was available yet. Dee Dee indicated that as much as possible that information requested by the Committee would be delivered no less than about a week before the Committee’s next meeting on March 10, 2011.  

Dee Dee indicated that a disclosure had been made by one of the members since Meeting No. 1 was held on January 20, 2011. George West explained that he is a retired employee of Ameron where he was employed for over 40 years where he is presently working as a part-time consultant on safety and labor issues. Ameron was one of the original sites identified in the Environmental Impact Statement for the Waimānalo Gulch in 2008. George indicated that he remains willing and able to serve in an impartial manner to assist the Committee with its task of evaluating landfill sites for the Mayor. There were no further comments offered by the members of the Committee present regarding George West’s continuation of service.
Dee Dee asked the Committee if any other member had a conflict to report and none did.

Dee Dee next asked members to review the list of prior alternative landfill sites evaluated by the City (which is a matter of public record) and to disclose if any Committee member had any potential conflicts associated with those locations at the next upcoming Meeting No. 3.

There being no further discussion the meeting adjourned at 9:30 AM.
Handout Materials

1. Siting Criteria for MSW and C&D Landfills
2. Construction and Demolition (C&D) Debris Disposal Need Estimate
3. Collection District of Origin MSW Going to the WGSL
4. Landfill Area and Capacity
Handout Materials
Mayor’s Advisory Committee on Landfill Site Selection
March 10, 2011

The following documents are submitted for the Committee’s information:

1. Siting Criteria for MSW and C&D Landfills
2. Construction and Demolition (C&D) Debris Disposal Need Estimate
3. Collection District of Origin MSW Going to the WGSL
4. Landfill Area and Capacity
1. Siting Criteria for MSW and C&D Landfills

Pacific Waste Consulting Group
March 7, 2011

The primary source of criteria for siting a landfill is in Hawaii Administrative Rules (HAR) 11-58 which regulates the siting and operation of disposal facilities. The siting criteria in HAR 11-58 are the same as those in the federal Resource Conservation and Recovery Act (RCRA) Subtitle D.

The following table lists the siting criteria and operational requirements applicable to MSW and C&D landfills, according to the regulations. The General Parameters are considerations that are needed for either of the types of sites.

<table>
<thead>
<tr>
<th>Item</th>
<th>Applicable to</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MSW</td>
</tr>
<tr>
<td><strong>Hawaii State and RCRA D Exclusionary Criteria</strong></td>
<td></td>
</tr>
<tr>
<td>Airport</td>
<td>X</td>
</tr>
<tr>
<td>Floodplain</td>
<td></td>
</tr>
<tr>
<td>Wetlands</td>
<td></td>
</tr>
<tr>
<td>Fault Areas</td>
<td></td>
</tr>
<tr>
<td>Seismic</td>
<td></td>
</tr>
<tr>
<td>Unstable Areas</td>
<td></td>
</tr>
<tr>
<td>Tidal Wave/Tsunami</td>
<td></td>
</tr>
<tr>
<td><strong>Operational Requirements</strong></td>
<td></td>
</tr>
<tr>
<td>Solid Waste Management Permit</td>
<td>X</td>
</tr>
<tr>
<td>Leachate management plan</td>
<td>X</td>
</tr>
<tr>
<td>Explosive gas controls</td>
<td>X</td>
</tr>
<tr>
<td>Liner</td>
<td>X</td>
</tr>
<tr>
<td>Daily cover</td>
<td>X</td>
</tr>
<tr>
<td>Operations Plan</td>
<td>X</td>
</tr>
<tr>
<td>Groundwater Monitoring</td>
<td>X</td>
</tr>
<tr>
<td><strong>General Parameters</strong></td>
<td></td>
</tr>
<tr>
<td>Buffer</td>
<td>X</td>
</tr>
<tr>
<td>Access</td>
<td>X</td>
</tr>
</tbody>
</table>
2. Construction and Demolition (C&D) Debris Disposal Need Estimate
Pacific Waste Consulting Group
March 9, 2011

This estimate of the future need for C&D disposal capacity is to identify the proportion of the C&D waste stream that the new City landfill could receive. The estimate reflects several unknown factors:

- The growth in C&D production is based in large part on the economy, the recovery of which is difficult to predict.
- The amount of C&D from the City’s project, such as the rail project, will be estimated prior to the start of the phases of construction.
- The growth in C&D production is difficult to project from past data since some of the C&D disposal is reported to occur at non-permitted disposal sites.

The estimate is based on several published factors:

- Information included in the City’s 2008 Draft Integrated Solid Waste Management Plan (IWMP). The 2008 IWMP estimates that the annual disposal at the PVT Landfill is approximately 200,000 tons per year.
- The IWMP estimates that the annual C&D disposal need in 2008 was 247,780 tons. That C&D estimate is used as the starting point for this analysis.

The estimate matches the time horizon of the 2008 IWMP, ending in 2030. It projects that the City’s new landfill will not start operations until 2021, 10 years after the completion of work by the MACLSS. This estimated start date for the new landfill is strictly for convenience for this analysis. THERE IS NO EXPECTATION IMPLIED THAT A NEW LANDFILL WILL BE IN OPERATION IN 10 YEARS.

The growth assumptions used are listed below. They were selected to try to estimate the minimum and maximum C&D waste.

- Zero percent growth in generation as the lower bound of the estimate. Zero percent was felt to be unrealistically low for as long a period as 2011 to 2030 as there will certainly be increases in construction in that period.
- One percent growth as more likely. One percent was felt to be a reasonable long-term estimate.
- Two percent as the upper bound. Two percent, annually, was felt to be too high a sustained annual growth.
The total amount of C&D that may need disposal at the City’s site is summarized in Table 1, Summary of Potential C&D Disposal at City Site. The table assumes that PVT accepts 200,000 tons per year. If the landfill accepts more, the estimated disposal at the City’s site may decrease and it may increase if the PVT site accepts less material.

While the C&D disposal needs vary in Table 1, use of 100,000 TPY of C&D in the new City site is a good general assumption.

Table 1, Summary of Potential C&D Disposal at City Site

<table>
<thead>
<tr>
<th>Year</th>
<th>TPY of C&amp;D Disposal at Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0%</td>
</tr>
<tr>
<td>2021</td>
<td>47,780</td>
</tr>
<tr>
<td>2022</td>
<td>47,780</td>
</tr>
<tr>
<td>2023</td>
<td>47,780</td>
</tr>
<tr>
<td>2024</td>
<td>47,780</td>
</tr>
<tr>
<td>2025</td>
<td>47,780</td>
</tr>
<tr>
<td>2026</td>
<td>47,780</td>
</tr>
<tr>
<td>2027</td>
<td>47,780</td>
</tr>
<tr>
<td>2028</td>
<td>47,780</td>
</tr>
<tr>
<td>2029</td>
<td>47,780</td>
</tr>
<tr>
<td>2030</td>
<td>47,780</td>
</tr>
</tbody>
</table>
3. Collection District of Origin
MSW Going to the WGSL

Pacific Waste Consulting Group
March 9, 2011

The table below summarizes the Collection District of origin for the waste that was disposed at the WGSL in fiscal year 2008/2009. That period was selected because it was before September 1, 2009, when the City started sending some waste to Hawaiian Waste Systems for transporting to the mainland. Coincidentally, this period also pre-dates the October 2008 start of the downward trend in the economy, which also reduced disposal and recycling.

The data in this table includes the following:

- Only the disposal from customers 100 TPY or greater is included. The customers with less than 100 TPY of disposal were less than one percent of the total waste received at the WGSL.
- Only the types of waste that are expected to go to the WGSL are included. For example, some of the waste from Convenience Centers will go to H–POWER, some will be recycled, and some will be sent to the WGSL. All of the sludge from the wastewater treatment plants and all of the auto fluff will be sent to the WGSL.
- All waste from the City collection vehicles, commercial haulers, and the transfer stations was assigned to H–POWER.
- This table does not include any waste from H–POWER that is disposed at WGSL.
- Some of the current sources of waste allocated to the WGSL may be redirected to other projects. For example, sludge is proposed as a feedstock to the new in-vessel compost plant designed to handle food waste, green waste and sludge.

The percentage of waste from each of the collection Areas is shown in Table 1, Waste Originating in Collection Areas.

<table>
<thead>
<tr>
<th>Collection Area</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honolulu</td>
<td>16%</td>
</tr>
<tr>
<td>Ewa</td>
<td>55%</td>
</tr>
<tr>
<td>Wainanae</td>
<td>12%</td>
</tr>
<tr>
<td>Wahiawa</td>
<td>7%</td>
</tr>
<tr>
<td>Waialua</td>
<td>5%</td>
</tr>
<tr>
<td>Koolauloa</td>
<td>4%</td>
</tr>
<tr>
<td>Koolaupoko</td>
<td>2%</td>
</tr>
</tbody>
</table>
The type of materials in the waste is estimated in Table 2, Estimated Composition of Convenience Center Waste. This information is taken from the Waste Composition Studies done for the City in 1999 and 2006. Both results are provided to show how the percentages have not changed much in several years. It is important to recognize that the composition of waste expected at WGSL is primarily non-combustible, meaning that the paper, plastic and wood are not expected in the waste going to WGSL. Those material types are grayed out in the table.

Table 2, Estimated Composition of Convenience Center Waste

<table>
<thead>
<tr>
<th>Material</th>
<th>Percentage of Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2006</td>
</tr>
<tr>
<td>Paper</td>
<td>5%</td>
</tr>
<tr>
<td>Plastic</td>
<td>6%</td>
</tr>
<tr>
<td>Metals</td>
<td>19%</td>
</tr>
<tr>
<td>Glass</td>
<td>1%</td>
</tr>
<tr>
<td>Other Inorganics</td>
<td>7%</td>
</tr>
<tr>
<td>Other Waste</td>
<td>22%</td>
</tr>
<tr>
<td>Green Waste</td>
<td>11%</td>
</tr>
<tr>
<td>Wood</td>
<td>25%</td>
</tr>
<tr>
<td>Other Organics</td>
<td>5%</td>
</tr>
<tr>
<td>HHW</td>
<td>&lt;0.5%</td>
</tr>
</tbody>
</table>
4. Landfill Area and Capacity

The area needed for a landfill depends on the configuration of the land being considered.

Three types of typical landfill configurations:
  • Canyon Fill
  • Hillside Fill
  • Flat Fill
Local Examples

The use of these local properties to illustrate the different types of terrain for landfills is **FOR EXAMPLE ONLY.** Nothing is implied or intended by the use of these properties for these examples.

The Waimanalo Gulch Sanitary Landfill is a typical Canyon Fill.

Three of the potential sites from the 2003 Mayor’s Committee evaluation are used here only as examples of other configurations.

- Ameron – Modified Canyon Fill
- Nanakuli B – Modified Hillside Fill
- Maili – Flat Fill
Canyon Fill

WGSL is used as an example of a Canyon Fill

- Bordered by ridges on the Northwest and Southeast.
- ~1,000 feet of elevation difference existing bottom to potential top of fill.
Canyon Fill

The waste fill configuration is a major factor in determining the volume of a Canyon Fill.

The amount of excavation into the existing slope will influence the available capacity.
Canyon Fill

To estimate the volume of a Canyon Fill, the final surface must be designed.

To be used only for illustration of landfill capacity from a Canyon Fill category of landfill.
Modified Canyon Fill

- Ameron Quarry is used for example only.
- Bordered by ridges on the Northwest and a partial ridge on the Southeast.
- ~325 feet of elevation difference existing bottom to potential top of waste fill.
Modified Canyon Fill Example

To estimate the volume of this example of a Modified Canyon Fill:

- Use existing surfaces as excavation has already been completed.
- Fill to the natural ridge line.
Modified Canyon Fill Example

The top fill surface would be graded at an appropriate slope to drain and blend with the surrounding terrain. A side slope fill surface will be necessary in this example and would also be designed to blend with the surrounding terrain.
Modified Hillside Fill

- Nanakuli B is used for example only.
- Bordered by a ridge on the East.
- ~180 feet of elevation difference between the existing bottom to potential top of waste fill.

To be used only for illustration of landfill capacity from a Modified Hillside Fill category of landfill.
Modified Hillside Fill Example

To estimate the volume of this Modified Hillside Fill, assume that the excavation will be constrained by historical groundwater elevations.
Modified Hillside Fill

To estimate the volume of this Modified Hillside Fill:

• Total fill depth from bottom liner to the top surface is 180 feet.
• Height is restricted due to conservation zone.
Flat Fill Example

- Maili is used as an example of a Flat Fill type.
- Historical high groundwater elevation prevents excavating the surface.
- A 50-foot fill depth is assumed to avoid visual impacts to the surrounding property.
Flat Fill Example

To estimate the volume of this Flat Fill, use the bottom and top areas and fill height of 50 feet with no excavation.
<table>
<thead>
<tr>
<th>No.</th>
<th>Site Name</th>
<th>Tax Map Key</th>
<th>Size (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Auloa</td>
<td>4-2-14:por 1</td>
<td>55</td>
</tr>
<tr>
<td>2</td>
<td>Ameron Quarry</td>
<td>4-2-15:01</td>
<td>391</td>
</tr>
<tr>
<td>3</td>
<td>Barbers Point</td>
<td>9-1-16:18, por 1</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>Bellows</td>
<td>4-1-15</td>
<td>173</td>
</tr>
<tr>
<td>5</td>
<td>Diamond Head Crater</td>
<td>3-1-42:por 6</td>
<td>115</td>
</tr>
<tr>
<td>6</td>
<td>'Ewa No. 1 (Developed)</td>
<td>9-1-17</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>'Ewa No. 2 (Developed)</td>
<td>9-1-10</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Hālawa A</td>
<td>9-9-10:8,9,por 10 &amp; 26</td>
<td>40</td>
</tr>
<tr>
<td>9</td>
<td>Hālawa B</td>
<td>9-9-10:27, por 10</td>
<td>60</td>
</tr>
<tr>
<td>10</td>
<td>He‘eia Kai (Developed)</td>
<td>4-6</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>He‘eia Uka</td>
<td>4-6-14:01</td>
<td>163</td>
</tr>
<tr>
<td>12</td>
<td>Honouliuli</td>
<td>9-1-17:por 4</td>
<td>22</td>
</tr>
<tr>
<td>13</td>
<td>Ka‘a’awa</td>
<td>5-1</td>
<td>150</td>
</tr>
<tr>
<td>14</td>
<td>Ka‘ena</td>
<td>6-9-1:por 3, 33 &amp; 34</td>
<td>40</td>
</tr>
<tr>
<td>15</td>
<td>Kahaluu</td>
<td>4-7</td>
<td>-</td>
</tr>
<tr>
<td>16</td>
<td>Kahe</td>
<td>9-2-3:por 27</td>
<td>200</td>
</tr>
<tr>
<td>17</td>
<td>Kalāheo (Closed)</td>
<td>4-2-15:por 1 &amp; 6</td>
<td>134</td>
</tr>
<tr>
<td>18</td>
<td>Kaloi</td>
<td>9-2-02:por 1; 9-2-3;por 2; 9-2-4:por 5</td>
<td>400</td>
</tr>
<tr>
<td>19</td>
<td>Kapa‘a No. 1</td>
<td>4-4-14:por 2</td>
<td>60</td>
</tr>
<tr>
<td>20</td>
<td>Kapa‘a No. 2 &amp; 3 (Closed)</td>
<td>4-2-15:por 1, 3, 4, 7</td>
<td>-</td>
</tr>
<tr>
<td>21</td>
<td>Kaukonahua</td>
<td>7-1</td>
<td>34</td>
</tr>
<tr>
<td>22</td>
<td>Kawaiola (Closed)</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>23</td>
<td>Ke‘eke‘e</td>
<td>6-9-1:por 3 &amp; 4, 6-9-3: por 2</td>
<td>40</td>
</tr>
<tr>
<td>24</td>
<td>Koko Crater</td>
<td>3-9-12: por 1</td>
<td>140</td>
</tr>
<tr>
<td>25</td>
<td>Kunia A</td>
<td>9-4-4: por 4</td>
<td>150</td>
</tr>
<tr>
<td>26</td>
<td>Kunia B</td>
<td>9-4-3: por 19</td>
<td>190</td>
</tr>
<tr>
<td>27</td>
<td>Mā'ili</td>
<td>8-7-10:3</td>
<td>200</td>
</tr>
<tr>
<td>28</td>
<td>Makaiwa</td>
<td>9-2-3</td>
<td>338</td>
</tr>
<tr>
<td>29</td>
<td>Makakilo Quarry</td>
<td>9-2-3:82</td>
<td>175</td>
</tr>
<tr>
<td>30</td>
<td>Makua</td>
<td>8-1-1, 8-2-1</td>
<td>600</td>
</tr>
<tr>
<td>31</td>
<td>Māili</td>
<td>9-5</td>
<td>34</td>
</tr>
<tr>
<td>32</td>
<td>Nānākuli A</td>
<td>8-7-9:1 &amp;3 and 8-7-21:26</td>
<td>179</td>
</tr>
<tr>
<td>33</td>
<td>Nānākuli B</td>
<td>8-7-9:1 &amp;3 and 8-7-21:26</td>
<td>432</td>
</tr>
<tr>
<td>34</td>
<td>Ohikilolo</td>
<td>8-3-1:13</td>
<td>706</td>
</tr>
<tr>
<td>35</td>
<td>Olomana</td>
<td>4-2</td>
<td>-</td>
</tr>
<tr>
<td>36</td>
<td>Poamoho</td>
<td>7-1</td>
<td>5</td>
</tr>
<tr>
<td>37</td>
<td>Punalu‘u</td>
<td>5-3</td>
<td>200</td>
</tr>
<tr>
<td>38</td>
<td>Sand Island (Developed)</td>
<td>1-5-41</td>
<td>150</td>
</tr>
<tr>
<td>39</td>
<td>Waiahole</td>
<td>4-8</td>
<td>60</td>
</tr>
<tr>
<td>40</td>
<td>Wai‘anae (Closed)</td>
<td>8-5</td>
<td>-</td>
</tr>
<tr>
<td>41</td>
<td>Wai‘anae Expansion</td>
<td>8-5-3 and 6</td>
<td>140</td>
</tr>
<tr>
<td>42</td>
<td>Waihe’e</td>
<td>4-7</td>
<td>61</td>
</tr>
<tr>
<td>43</td>
<td>Waikane</td>
<td>4-8</td>
<td>200</td>
</tr>
<tr>
<td>44</td>
<td>Waimānalo Gulch</td>
<td>9-2-3: 72 &amp; 73</td>
<td>60</td>
</tr>
<tr>
<td>45</td>
<td>Waimānalo North</td>
<td>4-1-08:13</td>
<td>171</td>
</tr>
<tr>
<td>46</td>
<td>Waimānalo South</td>
<td>4-1</td>
<td>355</td>
</tr>
<tr>
<td>47</td>
<td>Waipi‘o</td>
<td>9-3-2</td>
<td>60</td>
</tr>
</tbody>
</table>

Sites = 48
Example Criterion Data Sheets

1. Wind direction relative to populated areas

A site that is located so that trade winds blow away from populated areas is considered better to one where winds blow toward populated areas.

The “site” is the landfill property.

Populated areas are defined as locations with a collection of housing units comprising a subdivision; a delineated housing development; a group of homes located along a street or road; or a visitor serving facility, e.g., a hotel.

<table>
<thead>
<tr>
<th>Point Value</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The wind blows from the site toward populated areas</td>
</tr>
<tr>
<td>2</td>
<td>Not applicable</td>
</tr>
<tr>
<td>3</td>
<td>The wind does not blow from the site toward populated areas</td>
</tr>
</tbody>
</table>


How the point value of the criterion was determined: Visual examination of maps (landfill site location maps and wind maps in references cited).

Complications getting the data: No site-specific data are available for all sites to allow for more detailed evaluation of factors such as wind speed, frequency, and duration.

Complications calculating the point value: None

Are there populated areas immediately southwest of the site? Yes

Homes on far (west) side of XXXXXX Street, stretching from the site’s property boundary to XXXXXX Highway.

Point Value: 1
2. Visibility from a general use public road

This criterion measures the degree with which the landfill footprint would be visible from the nearby general use public roads.

The landfill “footprint” is the area in which operations will begin at a new landfill.

A “general use public road” is a road with a county, state or federal numerical designation.

Average daily traffic is the measure used by the state and federal agencies to characterize the number of vehicles that commonly use a roadway.

“Highly visible” means the view to the footprint of the site from the road is unimpeded.

“Moderate visibility” means the view to the footprint of the site from the road is impeded by natural land features for about half of the portion of the road that is adjacent to the site.

“Low visibility” means the view to the footprint of the site from the road is impeded by natural land features for most of the portion of the road that is adjacent to the site.

<table>
<thead>
<tr>
<th>Point Value</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Highly visible from a general use public road</td>
</tr>
<tr>
<td>2</td>
<td>Moderately visibility from a general use public road</td>
</tr>
<tr>
<td>3</td>
<td>Low visibility from non-general use public roads</td>
</tr>
</tbody>
</table>

Source of the data on which the point value was determined: Site observation from along XXXXXXX Highway, and XXXXXXXX Road/Street. See Appendix XXX.

How the point value of the criterion was determined: Qualitative assessment based on direct observation from the highway and adjoining roadway.

Complications getting the data: The viewplane from the highway offers only limited views and elevation changes in proximity to the site constrains views. Views of the site from XXX roadway along various points clearly show the extent of the landfill footprint.

Complications calculating the point value: None

A general use public road is one with a county, state, or federal numeric designation.

1. Numeric designation of a road adjacent to the site from which the footprint of the site is visible: XXX Highway, State Route ###.
a. Impediment to viewing the footprint of the site: Views toward the site footprint are limited due to elevation changes from the level of the road. This road, however, is more distant than XYZ Road.

b. Percentage of the road that the impediment prevents viewing the footprint: 90%.

2. Numeric designation of a road adjacent to the site from which the footprint of the site is visible: XXXXX Highway, Route ###.

   a. Impediment to viewing the footprint of the site: Views from the road fronting the area of the footprint are good.

   b. Percentage of the road that the impediment prevents viewing the footprint: 10%

**Numeric designation of the road from which the footprint of the site is most visible: XXXXX Highway, Route ###.**

**The visibility of the site from that road is:** highly visible

**Point Value:** 1
## Example of Matrix of Scores

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Weighting</th>
<th>Site 1</th>
<th>Site 2</th>
<th>Site 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category, e.g., Environmental</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Wind direction relative to populated areas</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2 Visibility from a general use public road</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>XXXXXXXX</td>
<td>##</td>
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<td>XXXXXXXX</td>
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<td>XXXXXXXX</td>
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<td>#</td>
</tr>
<tr>
<td>Other Categories as Applicable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other criterion as applicable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Site Score Totals

<table>
<thead>
<tr>
<th></th>
<th>Site 1</th>
<th>Site 2</th>
<th>Site 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>61</td>
<td>5</td>
<td>51</td>
</tr>
</tbody>
</table>
Mayor’s Advisory Committee on Landfill Site Selection
City and County of Honolulu

Information Distributed by Solid Waste Facilities

1. Schnitzer Steel Industries, Inc./Schnitzer Steel Hawai’i Corporation
2. H-POWER (Honolulu Program on Waste Energy Recovery)
3. PVT Landfill Company, Ltd. (Info on CD)
Information Distributed by Solid Waste Facilities

February 10, 2011

The attached information was distributed on February 10, 2011, during a field visit to solid waste handling facilities. This information is from:

(1) Schnitzer Steel Industries, Inc./Schnitzer Steel Hawai‘i Corporation
(2) H-POWER (Honolulu Program on Waste Energy Recovery)
(3) PVT Landfill Company, Ltd. (Info on CD)
Starting in 1906 in Oregon as a one-man scrap metal business, Schnitzer Steel has long understood the importance of finding new value in discarded materials. Today, we are investing in new technology to enhance recovery of metallics and meet customer quality needs, while minimizing environmental impacts.

Our Metals Recycling Business diverts steel and other metals from landfills and puts this material to productive use throughout the world. Every ton of recycled steel conserves 2,500 pounds of iron ore, 1,400 pounds of coal and 120 pounds of limestone. It also reduces the greenhouse gas emissions associated with mining virgin iron ore and ore-based steel production.

Our Steel Manufacturing Business is operated on highly efficient and sustainable business practices, which are constantly evaluated for improvement. For example, the innovative electric arc furnaces that process scrap metal use 75 percent less energy than furnaces used in ore-based steel production.

Our Auto Parts Business reduces the need to manufacture new parts by providing affordable used auto parts to consumers across the U.S. and Canada. We recycle about 300,000 cars annually, with estimated savings equivalent to 8,811 pounds of CO₂ per car.

As we look to the future, we are confident that sustainability will remain central to our business success, providing additional opportunities to obtain added value from recyclables.
In times of economic and environmental challenges, Schnitzer Steel’s long-held commitment to sustainability is more important than ever. Seeking added value through conservation, preservation, recycling — these are the principles underlying more than a century of success.

As a world leader in the metals recycling sector, we are constantly demonstrating that it is possible to thrive as an environmentally responsible business. We support our environmental initiatives with the capital investment, training and evaluation needed to succeed. And we are always looking beyond what’s required in order to get the best long-term result.

Our environmental policy commits us to practicing sustainable recycling and operating the business in an environmentally responsible manner. We’ve put teeth into this policy by embedding sustainability into decision-making, addressing standards of care, identifying responsibilities, requiring environmental management and mandating continued evaluation.

As you will see from the stories gathered in this brochure, our commitment to sustainability has brought about new opportunities for creativity and leadership. We have chosen stories that represent certain priorities, but for every example featured, there are also many other projects being carried out by our dedicated employees throughout the company.

These stories illustrate that what is good for the environment is also good for people and business in the long run. Finding efficient, creative solutions to tomorrow’s environmental challenges will go hand-in-hand with our continued vitality and success.
Salvaging the past
to power the future

“This program has made it easy for fishermen to recycle their unusable, heavy equipment — they don’t have to pay or go out of their way. Some have also found a new source of income in retrieving abandoned gear from the ocean floor.”

— James Banigan, General Manager, Schnitzer Steel Hawaii
Inspired by the successful participation in a Hawaii-based program for transforming ocean debris into energy, Schnitzer Steel is now a partner in the national Fishing for Energy initiative, a project that takes place in Maine, Massachusetts, New Jersey, New York, Oregon and Rhode Island. The partnership is a boon for fishermen, local communities and the marine environment, and has already reclaimed and recycled countless tons of old fishing gear.

Underwater hazards
Unseen and largely forgotten, tons of old fishing nets, ropes, lobster traps and fishing buoys litter the world’s oceans. Scientists estimate that 640,000 tons of derelict gear is left behind every year. Once abandoned, this equipment often begins a second life “ghost fishing,” snagging everything from commercially valuable fish to endangered turtles to boat propellers.

With our long tradition of environmental stewardship and expertise at finding value in discarded material, Schnitzer Steel is helping to provide a solution. Our company is a volunteer partner in the Fishing for Energy program, donating hauling and recycling services so that the collected ocean debris can later be turned into clean energy.

“Having the fisheries agencies, the ports, and the waste and recycling industries all working together shows what can be done when everyone gets together to solve an environmental problem.”

— Ron Wyden, United States Senator Fishing for Energy, August 2009

Adding expertise
One of the first large-scale programs to recover and recycle ocean debris began in Hawaii, where recovered fishing nets were collected and incinerated to produce energy.

Schnitzer Steel Hawaii's hauling and shredding services helped make that program a success. Now the effort is being expanded to include more partners, more communities, more resources, more fishermen and more old gear. The Fishing for Energy partnership includes the National Oceanic and Atmospheric Administration Marine Debris Program, the National Fish and Wildlife Foundation, Covanta Energy and Schnitzer Steel.

“With Schnitzer Steel and Covanta’s help, the old gear has been recycled and turned into clean energy – enough to power 300 homes on Oahu.”

— Reze Mansho, Community Relations Director, Schnitzer Steel Hawaii

The program brings the solution right to the source. Collection bins are provided at the docks, where fishermen can conveniently deposit their gear. From there, Schnitzer Steel provides the recycling expertise. When the bins are full, the gear is transported to a Schnitzer Steel facility. Metal components from crab pots, gear rigging and other debris are separated for recycling. Ropes and nets are sheared into small pieces. Next, the gear travels to the nearest Covanta Energy-from-Waste facility, where it is converted into electricity.

Now that the program has expanded, more fishermen on both coasts can dispose of their old fishing gear for free, and some even get financial incentives to pull abandoned gear out of the water.

Building on this success, Schnitzer Steel and its partners are exploring other locations for launching new programs.
Off the road and into the right hands

This past summer, Americans across the country exchanged their old vehicles for new, more energy-efficient models. Schnitzer Steel played an integral role by handling the “clunkers” in the most efficient, eco-friendly way possible.

By taking more than 700,000 gas-guzzling vehicles off the road, the federal Cash for Clunkers program benefited consumers, car makers and the environment. But what happened to all those clunkers after new vehicle owners went driving off into the sunset? They began a new life of service, providing used parts for area consumers and scrap metal to be melted into new steel products. Schnitzer Steel made it easy for auto dealers to recycle. Hundreds of car dealerships registered with Schnitzer’s Clunkers Recycling dealer program and with our Auto Parts Business, Pick-n-Pull Auto Dismantler.

“We’ve been recycling vehicles for decades. We gave dealers 100 percent assurance that the old vehicles would be handled in an environmentally responsible manner.”

— Ted Horton, Director of Production, Pick-n-Pull

Our commitment to conservation and decades of experience dismantling vehicles helped new car dealers meet the requirements of the federal Cash for Clunkers program. We are experts in identifying, removing, recovering and disposing of hard-to-handle materials in a way that minimizes impact on the environment. That experience ensured that the “clunkers” didn’t end up as future problems.

Obsolete cars may come from programs like Cash for Clunkers, or from sources ranging from individuals or auction house sales to municipal abandoned vehicle tow programs or charitable non-profit donation programs. Whichever the source, Pick-n-Pull is set up to address their needs as well as ensure the vehicles are recycled in the most comprehensive way.

The federal Cash for Clunkers program ended in August of 2009, but visitors to Pick-n-Pull self-service auto parts stores continue to see the benefits, thanks to the increased availability of high-quality, inexpensive, reusable auto parts.

“We’re not just recycling, we are encouraging people to reuse. Cash for Clunkers has benefited not just those who bought new cars, but also the people who wanted to keep their current car running efficiently,” said Ted Horton, Director of Production, Pick-n-Pull.

Schnitzer Steel also partners with state and local vehicle retirement programs with objectives similar to the federal Cash for Clunkers program.
Revitalizing habitat and minimizing impact

The Karileen Project in Federal Way, Washington received the 2009 Friends of the Hylebos "Innovation in Conservation" award.
Good environmental stewardship means looking beyond the drainage pipe to consider how urban, industrial and agricultural activity affects entire watersheds. Schnitzer Steel is doing our part to protect and restore these complex habitats that are so vital to clean drinking water, native wildlife, irrigation and industry.

Restoring Hylebos Creek

Hylebos Creek in Tacoma, Washington was once a prime salmon habitat. Due to causes from loose agricultural practices to urbanization, the stream today cannot support the wide array of plants and wildlife that once thrived there. When Schnitzer Steel acquired our deep water terminal in Tacoma, we began exploring ways to help restore that important area as part of our commitment to natural resource habitat restoration. The Karileen Restoration Project on the West Branch of Hylebos Creek, several miles from the terminal, is our latest contribution to the overall community effort. Watershed experts designed a plan to counteract the damage caused by development, grazing and invasive plants. The enhancements will be implemented throughout the 10-acre Karileen property, located in Federal Way, Washington.

The site includes several habitats, including wet pasture, forested wetland, upland pasture and upland forest habitats – a complex challenge for the restoration team.

The project site was chosen in consultation with Friends of the Hylebos for its habitat features and for its potential to enhance other restoration efforts. The Karileen property connects upstream restoration projects to high-quality salmon habitat downstream at the Gethsemane Cemetery.

“We are digging out invasive plants, de-leveling and lowering the compacted soil adjacent to the creek, and even reintroducing woody debris and snags. We’re working with the community to help re-create salmon spawning areas,” says Jim Jakubiak, a Schnitzer Steel Environmental Administrator.

Native plants bring new life to Little Bear Creek

Two hundred years ago, the land abutting Little Bear Creek was dense with Sitka spruce trees and sword ferns, and supported thriving populations of chinook salmon, rainbow trout, heron, falcons and songbirds. More recently, the land in Woodinville, Washington has been used for a variety of commercial purposes with predictable results – the once lush vegetation has thinned and the salmon and songbirds have gone elsewhere.

Since purchasing this former industrial site in 2008, Schnitzer has launched a plan to both develop the site as a metals recycling facility, and protect and restore the fragile habitat.

During initial site development, a team of habitat biologists will remove non-native plants and replace them with native species like black cottonwood, Sitka spruce, Western red cedar and sword ferns. The thick canopy of native trees and shrubs is expected to persuade wildlife to return and will serve to cool the stream waters, which encourages salmon reproduction and survival.

Schnitzer Steel will install a state-of-the-art storm water collection, treatment and dispersal system as a critical portion of constructing the recycling facility. The goal is to approximate natural hydrologic conditions at the boundary of the developed area to promote habitat recovery in the nearby creek and wetlands.

“Our goal is to restore natural conditions and provide an attractive habitat for native wildlife.”

— Scott Sloan, NW Regional Environmental Manager, Metals Recycling Business
Pulling together to solve a toxic problem

Schnitzer Steel’s Auto Parts Business received the Steel Manufacturers Association 2008 Recycler of the Year Award for leadership in mercury switch recycling.

Used and salvaged vehicles are valuable because they contain reusable parts and recyclable steel. Yet many of the millions of cars that reach the end of the road at auto dismantlers arrive with some small, unwanted baggage: under-the-hood or trunk convenience lighting switches containing mercury. Dismantlers must carefully remove and recover these switches and other harmful contaminants before the auto body moves on for further processing to ensure pollutants are not released into the environment during processing.

Understanding the potential environmental impact of improperly handled mercury switches, Schnitzer’s Auto Parts Business, Pick-n-Pull Auto Dismantler, adheres to a rigorous program for extraction and disposal. As a result, Pick-n-Pull has become a national leader in mercury switch recovery.

"I attribute our success to a company culture that encourages employees to do better than what’s required. We use a scorecard system to make sure all sites are keeping up, checking all vehicles for mercury."

— Chris Orsolini, Environmental Administrator, Auto Parts Business

In recognition of its industry leadership, the Steel Manufacturers Association named Pick-n-Pull “Recycler of the Year” in 2008.

Pick-n-Pull participates in the national End of Life Vehicle Solutions (ELVS) program, which was formed by the automotive industry and is a signatory to the U.S. Environmental Protection Agency’s National Vehicle Mercury Switch Recovery Program.

Pick-n-Pull began removing mercury switches before these programs were enacted, but since joining the program in 2006, we have recycled more than 280,000 mercury switches, keeping more than 617 pounds of mercury out of the environment.

"Metal can be recycled over and over again. For us to process it properly, it must arrive at our facility free of contaminants. That’s why we appreciate Pick-n-Pull’s excellent record of reliability when it comes to removing mercury switches."

— Tom Knola, Melt Shop Superintendent, Steel Manufacturing Business
PROPANE TANK RECYCLING

Diffusing an explosive cast-off

Northeast propane tank removal program takes families out of harm's way.

Old, unused propane tanks tend to linger—they are thrown under porches, hidden in basements, forgotten in garages. Yet unlike the broken chairs and ancient 8-track players they are keeping company with, old propane tanks are not benign when left unattended—they have the potential to ignite or explode.

Schnitzer Steel formed a partnership with municipalities and the New Hampshire-based company Aurjent to address this problem. Now residents of Maine, New Hampshire, Rhode Island and Massachusetts can dispose of their old propane tanks for free—and stop worrying about a fire hazard in their homes.

It’s a simple process. People turn in old tanks to their local municipality, and once the municipality collects 60 or so, they call Schnitzer Steel. Schnitzer’s contractor, Aurjent, picks up the tanks, evacuates the unused propane, cuts the tanks in half and delivers them to Schnitzer’s shredder facilities, where the tanks are recycled into scrap metal.

“This program has several benefits. It encourages the reuse and recycling of materials that otherwise would end up in landfills, and it removes potentially explosive tanks from private homes.”

— Colin Kelly, Public Relations Manager, Meta’s Recycling Business
Saving energy with new technology

Understanding that what is environmentally responsible is also good business practice, Schnitzer Steel continues to invest in new equipment with sustainability in mind.

Port of Oakland recycling facility switched to electric generators for pier cranes

“We like to stay on top of new technology – there’s always a better solution around the corner,” says Schnitzer Steel Oakland General Manager Frank Barbeau. To eliminate emissions from the Oakland pier crane, Schnitzer has retired its diesel generator and is operating the crane on power sourced directly from the lowest cost and more efficient shore electrical utility. Less expensive power adds to the environmental benefits and makes this the best business choice.

CASCADE STEEL ROLLING MILLS INSTALLS MORE EFFICIENT FANS, DECREASES BURDEN TO MUNICIPAL ELECTRICITY SUPPLY

Using incentives provided by local and regional utility companies, Cascade Steel Rolling Mills in McMinnville, Oregon is replacing older ventilation fan blades with new blades that require less energy to operate and can stay in use longer before being replaced.

Auto Parts Business making the switch to electric crushers

Across the many sites of the Auto Parts Business, diesel-powered crushers are being replaced with electric-powered crushers. One reason behind this change is the fact that diesel-powered engines emit pollutant-particulate matter not produced by using electric-powered engines. This change means the company saves energy and reduces pollution. In addition, electric crushers can be more reliable than diesel crushers. This means less time spent on repairs – yet another example of how green upgrades can be smart for the planet and the bottom line.

Cascade Steel engineers anticipate that the new blades will save about 3.5 million kilowatt hours per year, taking a significant burden off the municipal power supply.

“The new impellers save close to $70,000 per year in repair costs and $150,000 per year in electricity.”

— Michael Layfield, Operations Manager, Cascade Steel Rolling Mills
Innovating with water

Clean water is one of the planet's most precious resources. Schnitzer Steel is investing in equipment upgrades that conserve, divert and clean water — and reduce repair costs.

Shredders stay cool and cost effective with collected rain water
Metal on metal creates friction, and friction means heat. At Schnitzer Steel's recycling facility, the feedstock is instantly pulverized by the mega shredder, which stays cool with soothing baths of collected rainwater. Similar to our recycling facilities in other locations, the Oakland plant has installed a 1.2 million gallon tank to collect storm water. The storm water is "harvested" from catch basins and collected in a tank, where it can be treated before being re-used as cooling water. As a result, the facility avoids the need to use 6 million gallons annually from the local municipal water supply.

“Our investment in sustainability makes good business sense. Since completing the project, not a single pump has failed due to water quality, saving us $100,000 a year in repair costs.”
— Vern Floyd, Maintenance Foreman, Cascade Steel Rolling Mills

Equipment upgrades mean cleaner water for less energy
In 2008, Cascade Steel Rolling Mills made several upgrades to its Rod Block contact water treatment tank in McMinnville, Oregon to gain energy efficiency and improve performance. Among the changes: two cooling towers, a settling tank and centrifugal filter, a new chemical treatment system for contact water and variable frequency drives for the motors and fans.
As a result, the plant conserves an estimated 1 million kilowatt hours annually, while significantly improving the quality of water prior to discharge to the local Yamhill River.

Auto Parts Business automates water samplers
When there is a major storm, managers at Schnitzer's Pick-n-Pull sites collect and sample storm water. For an accurate read, the water must be collected after about five minutes of rain. And since storms do not always happen during business hours, an innovative, around-the-clock approach was called for.

The solution is both simple and sustainable: solar-powered, automated storm water collectors. Equipped with a rain gauge, timer and vacuum pump, this system automatically fills up a gallon jug of water. Should a storm occur overnight, the site manager arrives in the morning to find a perfect sample ready to send off for testing. And since these collectors are solar, they do not rely on the local energy grid to do the job.

Our Auto Parts Business is testing samplers at several California sites and plans to expand their use at other locations.
Always looking forward

At the turn of the 19th Century, Sam Schnitzer could not have foreseen issues such as greenhouse gas or climate change. But the business he founded was built on the principles that are fundamental to today's sustainability movement: recycling, reducing and reusing.

Today, we're proud of our roots and our current accomplishments. As we move forward, we will embrace even higher standards of sustainability and accountability. Growth, creative thinking and innovation are key to our business success. These same values define our commitment to sustainable business practices.

That commitment includes finding new ways, for example, to recover even more metallics from the material we process and to look for added value from residual materials such as plastic and rubber. We will increase and advance our ongoing efforts to reuse and recycle, while reducing the impact of the fluids and contaminants in inflow materials. We will continue to scrutinize and improve every aspect of our operations, from stormwater collection to emissions reduction to use of alternative energy - all with the discipline that has marked our efforts in the past to maximize efficiency and reduce our environmental footprint.

We also look forward to providing an ever richer variety of data and metrics, so that our success can be measured and compared using globally recognized standards. This effort has already begun and will become a regular part of our reporting to our stakeholders and community at large.
From the very beginning, our success has stemmed from our sense of stewardship and our ability to find new value in the materials we process. Today, the health of our company and the health of our planet are even more closely connected, and our commitment to sustainability has become more transparent and important than ever. We look forward to bolstering that commitment with every decision, every innovation and every improvement we make.
E Komo Mai! Welcome to the Scrap Metal Recycling World!

Schnitzer Steel Hawaii Corp. (SSHIC) recycles Hawai‘i’s scrap metal, old automobiles, metal appliances (without freon/gas), pipes, beams, bicycles, and we will pay you top dollar for the weight of your material.

We shred the scrap metal, and it is shipped to steel mills who melt the processed metal and produce new metal for re-use.

The photo at right, represents 20,000 tons of shredded metal. Annually, 140,000 tons of metal is diverted from our landfills.

FREE ROLL-OFF BINS
for Scrap Metal

* reduce your disposal cost
* preserve landfill space
* help our environment
* turn trash into cash

A roll-off bin can be delivered to your property/job site. After you’ve filled the container, call for pick-up; and depending on the amount of metal, you will be compensated for the total tonnage scaled in at SSHIC. Call Rene: (808) 306-1876.
IT'S TIME TO GIVE BACK TO OUR COMMUNITY

Monthly "Aloha 'Aina Earth Day Recycling Community Clean-Up" Projects

Participants:
Nani O Waianae
Farrington H. S.
K.E.Y. Project
Hui Nalu Canoe Club
Kapolei High School
Boy Scouts Troop 32
Hongwanji Mission School
Waipahu HS Project Grad
Laie Community Association
Waialua Community Association
Waikiki Community Center
Roosevelt High School
Leeward Community College
Leilehua High School
Kaimuki High School
Mililani High School
McKinley High School
Castle High School
Pearl City High School

We recycle: scrap metal, computers, batteries, plastic bags, green waste, cardboard, newspaper, beverage containers, telephone books, cell phones, cooking oil, magazines, printer cartridges. Clean up and turn trash into cash!

E-mail Rene Mansho for reservations or more information – RMansho@schn.com

SCHNITZER STEEL MARINE DEBRIS RECYCLING PARTNERSHIP PROJECT

PIER 38 BIN for FISHERMEN
NETS COLLECTED by NOAA
SSHIC SHEARS

Ten years ago, when General Manager James Banigan discovered that the nets were being buried in our landfills, he offered the shears to cut the nets in foot-long pieces, and haul them to HPOWER for burning and conversion to electricity. We help recycle 100 tons a year to generate enough electricity to fuel 42 homes.

HOURS of OPERATION:
Mon.-Sat. - 7:30 AM - 2:45 PM
Closed on Sundays

FREE SCHOOL TOURS - CLASSROOM LESSONS:
Call Rene: (808) 306-1876
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Description</th>
<th>Net Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>192-00</td>
<td>Tin</td>
<td>6880.0 LB</td>
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</tbody>
</table>

Total Wt- Gross: 40460.0 lbs Tare: 33580.0 lbs Net: 6880.0 lbs

<table>
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<tr>
<th>Commodity</th>
<th>Description</th>
<th>Net Weight</th>
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</thead>
<tbody>
<tr>
<td>192-00</td>
<td>Tin</td>
<td>3540.0 LB</td>
</tr>
</tbody>
</table>

Total Wt- Gross: 36820.0 lbs Tare: 33280.0 lbs Net: 3540.0 lbs
Measure Master: Cheyenne Nahulu - 3540

Commodity Description - Ferrous

Net Weight

Total Wt- Gross: 41300.0 lbs Tare: 33300.0 lbs Net: 8000.0 lbs

Weighmaster: SCHNITZER STEEL HAWAII CORP.
Weighed at: 91-056 HANUA STREET
KAPOLEI, HI 96707
808-682-5810

TRIP: 302 SCALE: 1 (TRUCK/Dock SCALE)
Vendor Number 346
Vendor Name CITY & COUNTY DIR. OF FINANCE
PARKS/RECREATION DEPT.
1000 ULUOHIA ST., #309
KAPOLEI, HI 96707

Measure Master Cheyenne Nahulu - 3540

Date and Time - In: 12/02/10 12:10 Out: 12/02/10 12:21

Commodity Description - Ferrous

Net Weight

Total Wt- Gross: 41140.0 lbs Tare: 33580.0 lbs Net: 7560.0 lbs
MARINE DEBRIS to ENERGY PARTNERSHIP

“Our mission: Sustainability, diverting marine debris from our landfills.”
Contact: Rene Mansho - RMansho@schn.com - (808) 306-1876

Recycling started in 2002
NOAA & USCG gathers nets
Nets are from Oahu, Big Island, North West Hawaiian Islands Monument - "Papahanaumokuakea"

Schnitzer hauls nets from Honolulu Harbor to their scrap metal recycling site.

Schnitzer uses hydraulic shears to cut nets and fishing lines into foot-long pieces which are trucked to the City's waste-to-energy facility, HPOWER. (Next: East & West Coast)

* 100 tons of nets incinerated per year will generate electricity to fuel 42 homes
* Partners: NOAA, USCG, Schnitzer Steel Hawaii, City & County of Honolulu, State Dept. of Bus. Econ. Dev. & Tourism, Alliance Trucking, Hawaii fishing industry

Admiral Conrad Lautenbacher, NOAA
Rene Mansho, Schnitzer Steel HI
U.S. Sec. Carlos Gutierrez, Commerce
Chris Woolaway, Multi-Agency Chair
MARINE DEBRIS TO ENERGY PARTNERSHIP ABSTRACT

Hawai‘i’s limited landfill space is a critical issue for the island state, and Schnitzer Steel Hawaii Corp. has stepped forward as a partner in diverting waste from the landfills at no cost to the government and NOAA. Helping the environment, doing the right thing, is Schnitzer’s bottom line.

Since 2002, the nets that NOAA, the US Coast Guard, Hawaii fisherman, and several community non-profit organizations have been collecting at their clean-up projects, have been hauled from the harbors, chopped into foot-long pieces, and trucked to HPOWER, where one hundred tons a year are incinerated and will generate enough electricity to fuel 42 homes a year.

Schnitzer worked with NOAA to service a bin at Honolulu Harbor Pier 38 regularly to encourage fishermen to collect marine debris and derelict fishing gear such as fishing lines for recycling instead of dumping them in trash containers.

The Big Island of Hawai‘i had a shoreline clean-up project sponsored by NOAA and Schnitzer coordinated the pick-up of a Matson container at Honolulu Harbor with the voluntary assistance of a specialized truck with a snorkel provided by Alliance Trucking. All free to NOAA.

Community Relations Director Rene Mansho coordinates the Marine Debris to Energy Partnership which involves several steps:

a) NOAA staff works with Rene to have a container delivered to the port
b) NOAA / USCG off-loads nets, Rene schedules pick-up
c) Pacific Ocean Producers calls Rene to empty Pier 38 bin
d) Rene contacts HPOWER to set up the schedule for delivery of chopped nets
e) Rene gathers all data on tonnage of nets recycled into electricity

The Island of Kaua‘i has a group collecting nets and a Schnitzer barge that hauls scrap metal will also be bringing nets to O‘ahu for recycling. The B.E.A.C.H. non-profit group brings their nets to the scrap metal yard for recycling, as have Kaneohe Bay fishermen in the past.

While Schnitzer Steel Hawai‘i has spent thousands of dollars for manpower, equipment, and fuel, saving the environment is priceless.

At the end of the day, Planet Earth says, “Thank you for caring.”
## Total Tonnage of Marine Debris

<table>
<thead>
<tr>
<th>Year</th>
<th>Tonnage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>108 tons</td>
</tr>
<tr>
<td>2003</td>
<td>119</td>
</tr>
<tr>
<td>2004</td>
<td>125</td>
</tr>
<tr>
<td>2005</td>
<td>93</td>
</tr>
<tr>
<td>2006</td>
<td>55</td>
</tr>
<tr>
<td>2007</td>
<td>75</td>
</tr>
<tr>
<td>2008</td>
<td>95</td>
</tr>
<tr>
<td>2009</td>
<td>98</td>
</tr>
<tr>
<td>*2010</td>
<td>65</td>
</tr>
<tr>
<td>total</td>
<td>833 tons</td>
</tr>
</tbody>
</table>
January 24, 2011

ALOHA 'AINA EARTH DAY PROGRAM in our 8th YEAR of RECYCLING

It's unbelievable! Our public/private partnership conducting monthly recycling community clean-up projects started with responding to cleaning up illegal dump sites, and now our work is described as sustainable and green. We've been going green since April 2004, and we just keep growing and growing. The program is a win-win to help residents beautify their neighborhood, recycle, and the hosting non-profit organization turns trash into cash. Here's a synopsis of the items we are keeping out of the landfills, preserving natural resources, and saving trees!

<table>
<thead>
<tr>
<th>Item</th>
<th>Per event average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scrap metal</td>
<td>3,087,080 lbs</td>
</tr>
<tr>
<td>Tires</td>
<td>12,000</td>
</tr>
<tr>
<td>Green waste</td>
<td>84 containers</td>
</tr>
<tr>
<td>Newspaper, cardboard</td>
<td>96 containers</td>
</tr>
<tr>
<td>Beverage containers</td>
<td>96 containers</td>
</tr>
<tr>
<td>Computers</td>
<td>122 truckloads</td>
</tr>
<tr>
<td>Cell phones</td>
<td>5,000</td>
</tr>
<tr>
<td>Printer cartridges</td>
<td>4,000</td>
</tr>
<tr>
<td>Goodwill Industries truckloads</td>
<td>72</td>
</tr>
<tr>
<td>Telephone books</td>
<td>30,500</td>
</tr>
<tr>
<td>Magazines</td>
<td>10,000</td>
</tr>
<tr>
<td>Athletic shoes</td>
<td>3,800</td>
</tr>
<tr>
<td>Batteries</td>
<td>20,500</td>
</tr>
<tr>
<td>Cooking oil</td>
<td>8500 gallons</td>
</tr>
<tr>
<td>Curbside truck service</td>
<td>505 flatbed trucks with lift gates</td>
</tr>
</tbody>
</table>

Per event average

3,087,080 lbs 24,000 lbs.
12,000 200
84 containers 1
96 containers 1
96 containers 1
122 truckloads 2
5,000 100
4,000 75
72 1
30,500 300
10,000 200
3,800 200
20,500 300
8500 20
505 flatbed trucks with lift gates

A big mahalo to all of the private recycling businesses who come out pro bono to help residents recycle, and the State of Hawaii who provides school facilities, and most importantly, to the City and County of Honolulu who are our solid partners to ensure success of this program. The bottom line is that people want to recycle, we make it convenient, and it wouldn't be possible if any of the partners pulled out. The environment wins; planet earth is a better place for all of us. Why do we do it? Because we want to give back to our community for their dedication and sacrifice to help the environment, too.

Please call Rene Mansho@ 306-1876 for information about the 2009 events or check website: www.hawaiimetal.com.
Twice a month, Schnitzer Steel Hawaii coordinates the “Aloha 'Aina Earth Day Recycling Community Clean-Up Project,” which is a private-public partnership of generous businesses who donate their time and resources to:

- reduce waste and expand recycling
- divert waste from our landfills
- clean illegal dump sites
- preserve natural resources
- help schools and community organizations raise needed funds
- increase awareness about solid waste management and disposal.
- save taxpayers’ dollars & save businesses’ bottom line during these tough times

How you ask? Simple! We organize at a large parking lot with containers and trucks ready to accept recyclable material from the public. Schnitzer Steel Hawaii’s front loader is hauled free of charge by Alliance Trucking to the site to assist with heavy materials that need to be loaded in their roll-off bins.

Volunteers turn out on Saturdays from 8:00 AM – 2:00 PM, roll up their sleeves, put on work gloves, and assist the customers bringing their trash, or they jump in a Penske Truck to do curbside pick-ups in the neighborhood, and many times, far away, too!

At the end of the day, the school or non-profit organization receives 4 checks for their efforts:

- scrap metal – Schnitzer Steel Hawaii Corp.
- newspaper, cardboard, beverage containers – Honolulu Recovery Systems
- cell phones, ink cartridges, laptop computers – Intrade Corporation
- cooking oil – Pacific Biodiesel

“Aloha 'Aina Earth Days” started in April 2004, to address illegal dumping issues. The first event was held with Nani O Wai‘anae, at Waianae Boat Harbor collecting only scrap metal, and has progressed to include 20 items that are being re-used, and/or recycled.

On March 5, 2009, the Hawaii State Senate presented a certificate to commemorate the “5th Anniversary of Aloha ‘Aina Earth Day.” The State House of Representatives presentation was on May 5, 2009. Governor Linda Lingle and Lt. Governor Duke Aiona and Mayor Mufi Hannemann’s 5th Anniversary Proclamations were presented on June 15, and April 24, 2009, respectively; and the Honolulu City Council presented their Honorary Certificate on November 18, 2009, commending their 5th Anniversary.

Often, many recycling businesses are unable to offer pro-bono community services, so we take this opportunity to say “thank you” to the environmental partners of “Aloha ‘Aina Earth Day.” A strong supporter is the City’s partnership every month.

Currently, Councilwoman Ann Kobayashi is working on educating the public to use Aloha ‘Aina Earth Days for community bulky items recycling year round.

Planet Earth is a better place because of everyone working together.
HONORING & CELEBRATING
THE FIFTH ANNIVERSARY of the ALOHA 'AINA EARTH DAY RECYCLING COMMUNITY CLEAN-UP PROGRAM

The Honolulu City Council is proud to recognize those special individuals who selflessly utilize their knowledge and talents to faithfully serve the community and have contributed significantly to the recycling and sustainability efforts of the community. Their commitment has also fostered important recycling education and wonderful opportunities for friendship and goodwill to be shared among the people of Hawaii. The Aloha 'Aina Earth Day recyclers' mission is to divert waste from our landfills, re-use, recycle, and promote environmental protection. Schnitzer Steel Hawaii played a vital role in starting and coordinating the effort. The first event was hosted by Nani O Wai'anae in April 2004, and Kaimuki High School was the first school to participate in the program in October 2004.

On designated days, with the community's help, all types of recyclable items are collected at a location within the community. These one-stop locations allow residents to recycle many household items that can be difficult to dispose of. The list of recyclable items includes scrap metal, green waste, computers, cell phones, tires, athletic shoes, batteries, eye glasses, hearing aids, telephone books and magazines, cooking oil, incandescent light bulbs, as well as the towing of unwanted cars.

Proceeds from the recyclables are donated to community organizations. As a result, natural resources are preserved, the environment is cleaned, and worthy programs earn needed funds to provide valuable community services. More than 1,100 net tons of scrap metal have been recycled over 5 years and $67,500 has been raised from various companies. Over fifty schools and community groups have participated and benefitted from this program. Most of all, critical landfill space is saved.

The Council of the City and County of Honolulu, in the State of Hawaii, would like to honor the generous environmental partners who host monthly Aloha 'Aina Earth Days:

- Access Information Management
- Alliance Trucking/Contracting
- Alternate Energy
- Blue Planet Foundation
- City Department of Environmental Services
- Goodwill Industries of Hawaii
- Family Towing
- 1-800 Got Junk
- Grace Pacific Corporation
- Hagadone Printing Company
- Hawaii Lions District 50
- Hawaiian Earth Products
- Honolulu Recovery Systems
- Interstate Battery Systems
- Intrade Corporation
- Menehune Water Company
- Pacific Biodiesel
- Pacific Corporate Solutions
- Paradise Lua, Inc.
- Penske Truck Rental
- Refrigerant Recycling Inc.
- Schnitzer Steel Hawaii Corporation
- State Department of Education
- T&N Computer Recycling Services
- Unitek Solvent Services
- Walmart/Sam's Club

Furthermore, The Council recognizes the auspicious occasion of Aloha 'Aina Earth Day Recycling Community Clean-Up's Fifth Anniversary and joins the citizens of the State of Hawaii in their celebration and extends its best wishes for continued success in all their future endeavors. Planet Earth is a better place.
CONGRATULATES & CELEBRATES
THE FIFTH ANNIVERSARY of the ALOHA AINA EARTH DAY
RECYCLING COMMUNITY CLEAN-UP PROGRAM

The House of Representatives is proud to recognize those special individuals who selflessly utilize their knowledge and talents to faithfully serve the community and have contributed significantly to the recycling and sustainability efforts of the community. Their commitment has also fostered important recycling education and wonderful opportunities for friendship and goodwill to be shared among the people of Hawaii.

On designated days, with the community's help, all types of recyclable items are collected at a location within the community. The list of recyclable items collected includes scrap metal, green waste; plastic, glass and aluminum containers; cell phones; computers; printer cartridges, tires; newspaper and cardboard; telephone books and magazines, athletic shoes, plastic bags, plastic hangers, batteries, used household goods and clothing; eye glasses, hearing aids, cooking oil, as well as the towing of unwanted cars. The schools and community organizations that host the events also receive money for recyclables such as scrap metal, HI-5 containers, cell phones, printer cartridges, and cooking oil. As a result, natural resources are preserved; the environment is cleaned, and worthy programs earn needed funds to provide valuable community services. More than 1,100 net tons of scrap metal have been recycled over 5 years and $67,500 from various companies, has been raised for schools and community groups. Most of all, critical landfill space is saved.


The Representatives of the State of Hawai‘i recognize the auspicious occasion of Aloha `Aina Earth Day Recycling Community Clean-Up’s Fifth Anniversary and joins the citizens of the State of Hawai‘i in their celebration, and also extends its best wishes for continued success in all their future endeavors. Planet Earth is a better place.
Future generations are counting on us to do our part to preserve precious our natural resources. As an isolated archipelago in the middle of the Pacific, Hawai‘i must be self-sustaining. The Environmental Protection Agency estimates that about 80 percent of what Americans throw away is recyclable, yet the recycling rate of U.S. citizens is only 28 percent. Recycling involves processing used materials into new products to prevent waste of potentially useful materials and reduce the use of limited resources, energy usage and air and water pollution.

For the past five years, Aloha ‘Āina Earth Day Recycling Community Clean-Up, a public-private partnership, has contributed a great deal to sustainability efforts in our neighborhoods by educating the public about recycling and providing opportunities for people to become involved. The proceeds from the fundraisers and community service events are donated to organizations such as schools and senior centers. Since 2004, Aloha ‘Āina Earth Day Recycling Community Clean-Up has raised $67,500, diverted waste from our landfills and recycled 1,100 tons of scrap metal.

The success of the Aloha ‘Āina Earth Day Recycling Community Clean-Up relies on the participation of organizations and recyclers. Our Administration would like to recognize those who have contributed to creating a brighter future for the people of our state: Boy Scout Troop 32; Campbell High School; Farrington High School; Friends of Ma‘alii Community Learning Center; Hau‘ula Community School; Hawai‘i Nature Center; Hui Nala Canoe Club; Iauoa Athletics; K.E.Y. Project; Kaimuki High School; Kalani High School; Kamehameha Elementary School; Kapahulu Center, Mō‘ili‘ili Community Center; Kapolei High School Graphics; Kooloapoko Hawaiian Civic Club; Lil‘ie Community Association; Lanakila Multi-Purpose Senior Center; Leeward Community College; Leilehua High School; McKinley High School; Mililani High School; Moanalua High School; Nanakuli High School; Nani O Wa‘ianae; Pa‘aluhi Kū‘au‘u; Wa‘ianae Maritime Academy; Pearl City High School; Radford High School; Roosevelt High School; Sylvester Foundation; Wahiawa Lions Club; Wai‘alea Community Association; Waialua High School Foundation; Waikiki Community Center; Waimanalo Construction Coalition; Waipahu Complex; Waipahu High School; and Windward Ahupua‘a Alliance. We are pleased to join Aloha ‘Āina Earth Day Recycling Community Clean-Up in celebrating its fifth milestone anniversary on the same year we commemorate Hawai‘i’s 50 years of statehood.

THEREFORE, I, LINDA LINGLE, Governor, and J. JAMES R. “DUKE” AIONA, JR., Lieutenant Governor of the State of Hawai‘i, do hereby proclaim June 15, 2009, as

**ALOHA ‘ĀINA EARTH DAY RECYCLING COMMUNITY CLEAN-UP**

day in Hawai‘i, and encourage our citizens to do their part to help save the planet through recycling and sustainability efforts to ensure a healthy environment for future generations.

DONE at the State Capitol, in the Executive Chambers, Honolulu, State of Hawai‘i, this fifteenth day of June 2009.

Linda Lingle  
Governor, State of Hawai‘i

Lieutenant Governor, State of Hawai‘i
WHEREAS, Aloha Aina Earth Day promotes recycling, diverts waste from our landfills, preserves natural resources and cleans up our environment; and

WHEREAS, the program enlists the help of community groups, school programs and other worthy organizations in collecting recyclable items at a convenient community location with proceeds from the recyclables donated to these organizations; and

WHEREAS, more than 1,100 net tons of scrap metal have been recycled over five years, and $67,500 has been raised for schools and community groups; and

WHEREAS, Access Information Management, the City's Department of Environmental Services, Family Towing, Goodwill Industries of Hawaii, Grace Pacific Corp., Hawaii Lions District 50, Hawaiian Earth Products, the Honolulu Fire Department, Honolulu Recovery Systems, Interstate Battery Systems, Intrade Corporation, Menehune Water Company, Nike Town Re-Use a Shoe, Pacific Allied Products, Pacific Biodiesel, Paradise Lua, Penske Truck Rental, Refrigerant Recycling, Schnitzer Steel Hawaii, Hawaii Department of Education, T&N Computer Recycling Services, Unitek Solvent Services, and Walmart are proud partners of this outstanding program; and

WHEREAS, Aloha Aina Earth Day celebrates its fifth year of contributing significantly to recycling and sustainability efforts in our community,

NOW, THEREFORE, I, MUFI HANNEMANN, Mayor of the City and County of Honolulu, do hereby proclaim April 24, 2009, to be

ALOHA AINA EARTH DAY

in the City and County of Honolulu, in honor of this valuable program that conserves resources, preserves and protects our environment, and benefits worthy projects and groups in our community.

Done this 24th day of April, 2009,
in Honolulu, Hawaii.

MUFI HANNEMANN
Aloha 'Aina Earth Day #94
Recycling Community Clean-Up and Fundraiser for
WAIPAHU INTER. SCHOOL- 94-455 Farrington Hwy.
February 12, 2011 - 8:00 AM-2:00 PM

Please save your recyclable waste for this date and help turn trash into cash for our student programs.

The following will be accepted at the site:

- Scrap metal
- HI-5 beverage containers
- Cooking oil
- Cellular phones
- Printer Cartridges
- Newspaper, cardboard
- Plastic bags
- Used eye glasses, hearing aids
- Batteries – all kinds
- Incandescent light bulb exchange for 2 CFLs – 2 per person
- Computers, printers, scanner - UNLIMITED
- residents, businesses welcomed
- Usable clothing /household items
- Telephone books, magazines
- Cardboard egg cartons/drink trays
- Collecting canned goods for the HAWAII FOOD BANK!
- Unwanted cars – FREE TOWING by appointment only-ph. 306-1876
- WILL NOT ACCEPT:
  Tires, Motor Oil, TVs, Paints, Hazard Fluids, Microwave Ovens, Green waste
- FREE roll-off bin service for scrap metal – call for info- 306-1876

Mahalo to: Congresswoman Mazie Hirono, Governor Neil Abercrombie, Senator Clarence Nishihara,

Call Zoe Tanaka for curbside pick-up @ 671-3950 / Rene Mansho @306-1876 e-mail: RMan sho@schn.com

“Earth Day is Every Day” - www.hawaiimetal.com - www.schn.com
**ALOHA `AINA EARTH DAY - 2011**
*Mini Events - “Nourishing Our Neighborhoods”*

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 8</td>
<td>Castle High School</td>
</tr>
<tr>
<td>Feb. 12</td>
<td>Waipahu Inter. Sch. - Oelo</td>
</tr>
<tr>
<td>Feb. 26</td>
<td>808 Dragons Baseball - Washington Middle School - <strong>ACCESS SHREDDING</strong></td>
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<tr>
<td>Mar. 5</td>
<td>Waianae High School</td>
</tr>
<tr>
<td>Mar. 12</td>
<td>Mini-event - Kalaeo High School Project Grad 2011</td>
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<td>Mar. 19</td>
<td>Farrington High School</td>
</tr>
<tr>
<td>Mar. 26</td>
<td>Mini event - UH Lab School</td>
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<tr>
<td>Apr. 2</td>
<td>Mini event - Waipahu Project Grad 2011</td>
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<tr>
<td>Apr. 9</td>
<td>Leilehua High School</td>
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<td>Apr. 16</td>
<td>Kalihi Waena Elem. School - KAUPA</td>
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<td>May 7</td>
<td>Hawaii United Okinawa Association</td>
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<td>May 28</td>
<td>Moanalua High School</td>
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<td>June 4</td>
<td>Hawaii D.A.R.E. Program</td>
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<td>Pearl City High School</td>
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<td>July 9</td>
<td>Oahu Veterans Center</td>
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<td>Aug. 6</td>
<td>Saint Louis School</td>
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<td>Aug. 13</td>
<td>Nanakuli High &amp; Int. School</td>
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<td>Aug. 27</td>
<td>McKinley High School</td>
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<tr>
<td>Sept. 10</td>
<td>Mini event – Kapolei High School</td>
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<td>Sept. 17</td>
<td>Waikiki 2000 Lions Club – Ala Wai Elementary School</td>
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<tr>
<td>Oct. 1</td>
<td>St. Timothy’s – Pearl Ridge</td>
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<td>Oct. 8</td>
<td>Waialua Community Association</td>
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<td>Nov. 5</td>
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<tr>
<td>Dec. 3</td>
<td>ACCESS SHREDDING</td>
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</tbody>
</table>

**Schedule may change due to ship loading.**

Call Rene Mansho @ (808) 306-1876 or
e-mail: RMansho@schn.com  www.hawaiimetal.com

www.hawaiimetal.com  www.schnitzersteel.com
<table>
<thead>
<tr>
<th>Order #</th>
<th>Date Received</th>
<th>Customer Name</th>
<th>Description of Material</th>
<th>Material Weight</th>
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<td>1591</td>
<td>06/19/10</td>
<td>Aloha Aina - Washington Middle School</td>
<td>Misc. Electronics</td>
<td>27,119</td>
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H-POWER
H-POWER Facts and Figures


2. H-POWER capacity is 2000 tons per day of MSW (municipal solid waste). The Third Boiler Expansion will add another 900 tons per day starting in Mid-2012.

3. From starting operations in 1990 to the end of 2009, H-POWER received 12,100,000 tons of MSW. This is 870,000 tons more than the guaranteed capacity or the equivalent of 1.5 additional years. A very good deal for the tax-paying residents of Oahu!

4. Reduction of waste is 90% by volume. 250-300 trucks deliver waste 6 days a week (Monday – Saturday) to H-POWER. The tipping fee is $91/ton, the same as the landfill. 25-30 truck loads of ash are taken to the landfill each day. H-POWER has saved over 500 acres of landfill space.

5. H-POWER receives half residential and half commercial MSW. Residential MSW comes from three transfer stations (Keehi, Kapaa, and Kawailoa) and from the Pearl City and Waianae Yards. Commercial MSW comes from haulers who pick up MSW from the apartments, businesses, and hotels. H-POWER does not accept any hazardous or liquid wastes.

6. H-POWER is a base-load facility that produces 50 MW of electricity (45 MW net). The electricity is sold to Hawaiian Electric Company (HECO) and is enough to power 40,000 homes every day. The Expansion will add another 25-30 MW.

7. H-POWER consistently achieves 85-90% annual availability. This is about double that of wind. 2-3 regularly scheduled outages per year are required to perform maintenance on the boilers and other critical equipment. These outages are planned up to 5 years in advance by Covanta and HECO.

8. H-POWER is a renewable energy source along with solar, wind, and geothermal. H-POWER makes a significant contribution to the State’s Renewable Portfolio Standards, which set a goal of 25% energy from renewable sources by 2020. H-POWER saves 800,000 barrels of imported oil every year. This also offsets greenhouse gas emissions.

9. Covanta Energy is the contract operator for H-POWER. The City and County of Honolulu “owns” the plant through financial arrangements with Covanta Honolulu Resource Recovery Venture.

10. 150 local employees keep H-POWER running 24/7. They are all skilled employees who receive training from Covanta Energy programs, local community college, craft training shop programs, military service, outside technical seminars, environmental compliance programs, and the ASME (American Society of Mechanical Engineers). The Expansion will add another 30-40 employees.

11. H-POWER safety standards meet or exceed OSHA’s Voluntary Protection Program (VPP), their top safety program. H-POWER is the only VPP power facility in the State. Covanta conducts Step-Up for Safety training for all employees. Covanta’s on-site Quick Response Team (QRT) is trained in First Aid, CPR, and AED use by the Honolulu Fire Department and HeartStart. The QRT can respond immediately to any medical emergency.

12/8/2010
12. H-POWER environmental controls are excellent and meet the EPA’s most stringent requirements. An acid gas scrubber and fabric filter baghouses remove pollutants from the exhaust gases and the exhaust is continuously monitored by state-of-the-art sensors and instrumentation (Continuous Emissions Monitoring System or CEMS) which provides complete real-time data and all requirements for reporting to plant operators, managers, and the Hawaii Department of Health (state EPA). H-POWER’s environmental record is exemplary!

13. H-POWER ash is non-hazardous and is currently being landfilled. Initiatives to recycle the ash into asphalt, concrete, and other materials have been extensively researched and successfully demonstrated.

14. H-POWER recycles waste into energy. It also recovers materials for recycling. The Waste Processing Facility (WPF) is the front-end waste preparation equipment system within H-POWER, utilizing a picking station, shredders, magnets, and trommels. MSW is prepared for combustion through this process into RDF (Refuse-Derived Fuel). Magnets and the Bottom Ash Metals Recovery System (BAMRS) recover 20,000 tons of ferrous and non-ferrous metals per year from the front-end and from the ash. These metals are delivered to local metals recyclers. H-POWER also recovers other items such as tires, white goods, and propane tanks.

15. The RDF is then combusted through the Waste-to-Energy Boilers producing steam, which drives a steam turbine-generator to produce electricity. The boiler walls are composed of waterwall tubes, which are metal pipes filled with water. The heat from RDF combustion turns the water into steam, which drives the turbine-generator. The Expansion will add a second turbine-generator. The Expansion will be of a mass-burn design. This design allows for combustion of a greater variety of waste, including bulky waste, which is currently being disposed of at the landfill.

16. H-POWER generates net revenues from user tip fees and from the sale of energy products and recovered materials.

17. H-POWER saves landfill space, produces electrical energy, recovers metals, and is the only proven method of large quantity waste disposal for Oahu.

H-POWER - the cornerstone of a proven, self-sustaining Waste Management program.
**HPower Results:**

- HPower generates clean, renewable power providing 7% of Oahu's electricity.
- HPower conserves precious landfill space, with hundreds of acres saved to date.
- HPower eliminates the need for 800,000 barrels of imported oil each year.
- HPower recovers and recycles 20,000 tons of metal each year.
- HPower utilizes proven technology, to meet strict environmental regulations.
- HPower ash is safe and being studied for methods of reuse.
- HPower is cost-effective and an important part of our community.

**Questions?**

Call your HPower facility at (808) 682-2099 for more information or to schedule a tour.

**HPower**

Convanta Honolulu Resource Recovery Venture
91-174 Hanua Street
Kapolei, HI 96707
Step inside the HPower facility and you can feel the energy.

Here, 24 hours a day, 365 days a year, ordinary household garbage is converted into environmentally sound, renewable electricity that powers thousands of Oahu households. In the process, precious landfill space is preserved, 300,000 barrels of imported oil per year are saved, and the beauty of our island home is protected.

The HPower Process:

1. Trucks deliver municipal solid waste
2. Primary shredders open and spread waste
3. Electromagnets remove metals for recycling
4. Screens remove dirt, sand and glass
5. Secondary shredder processes remaining waste
6. Waste is combusted in boiler producing steam
7. Steam drives turbine to generate electricity
8. Air pollution control equipment cleans exhaust gas
9. Ash is hauled to landfill for disposal
10. Renewable electricity powers 45,000 Hawaii homes

Waste processing and preparation:

- Primary shredder
- Magnets
- Trommel screen
- RDF storage
- Duct and glass
- Secondary shredder

Electrical production:

- Electricity to 45,000 homes
- Turbine generator

Combustion process:

- Boiler
- RDF fuel
- Metal recovery
- Ash load out

Pollution control equipment:

- ESP (Electrostatic Precipitation)
- Scrubbers
- CEMS (Continuous Emissions Monitoring System)

12/8/2010