PVT Integrated
Solid Waste Management Facility Relocation

View PVT’s Environmental Impact Statement documents at www.pvtland.com/eis/
PVT Integrated Solid Waste Management Facility Relocation

PVT is now the state’s largest recycler. PVT is the only public construction and demolition (C&D) landfill and recycling facility on Oahu. PVT’s goal is to safely recycle, reclaim, and reuse as much C&D materials as possible.

What PVT Does

No longer simply a landfill, the PVT facility in Nanakuli has evolved into an Integrated Solid Waste Management Facility (ISWMF) that reduces the volume of waste buried onsite.

- PVT takes up to 3,000 tons of C&D waste per day, approximately 80% of which is reused or recycled using a state-of-the-art sorting facility.
- Only about 20% of C&D debris entering the facility goes into the landfill.
- Sixty percent, primarily wood and plastic, is converted to fuel for energy production, and another 20% is recycled or reused.

To further maximize the capacity of the existing landfill, PVT excavated previously buried waste and processed it through the current sorting and recycling procedures.

Although PVT’s waste diversion practices have extended the life of the C&D landfill, the ongoing construction boom on Oahu has generated larger volumes of C&D debris over a longer period than anticipated. Even with expanded recycling efforts, PVT has run out of ways to increase the capacity at the existing facility. Currently, PVT is initiating closure activities, as allowed by its Solid Waste Management Permit.

What PVT Does Not Do

The facility does not accept municipal solid waste (MSW), industrial waste, regulated hazardous waste, radioactive waste, infectious waste as defined by state regulations, or Toxic Substances Control Act-regulated polychlorinated biphenyl (PCB) contaminated materials.

Why Oahu Needs PVT

As Oahu’s only public facility for C&D materials, PVT plays a critical role in Oahu’s construction industry and the state’s economy. The City and County of Honolulu relies on PVT to meet federal, state, and city needs for C&D waste management over the next 25 years. PVT also meets a vital need as the designated disposal site for emergency disaster debris. In a natural disaster, an entire year of C&D debris can be generated in one day.

Without PVT, Oahu would have no C&D landfill. No alternative locations for C&D waste management facilities currently exist. Therefore, if PVT discontinues operation because it has reached capacity, the ability to handle solid waste management on Oahu would be severely affected. One likely result would be an increase in unauthorized dumping.

Proposed Action

PVT proposes to relocate and improve its operation in order to provide uninterrupted C&D waste management services for Oahu. The key components of the Proposed Action include:

1. Relocate its C&D debris receiving, recycling, and disposal operation.
2. Upgrade its recycling operations by installing two materials recovery and processing lines.
3. Install renewable energy facilities (an enclosed gasification unit and photovoltaic panels) to power operations.

The proposed action will provide Oahu with critical landfill capacity for C&D waste disposal to support construction industry and disaster preparedness. It will also divert C&D materials from landfills through reuse, recycling, and reclamation. And, importantly, it will generate feedstock for energy producers to support our state’s renewable energy goals.

Project Site (Fig. 1)

The proposed Project Site is in Nanakuli, Waianae District of Oahu, Hawaii. The 179-acre parcel, owned by a PVT affiliate, is located directly east of the existing PVT ISWMF across Lualualei Naval Road.

The proposed relocation site is feasible because it provides the following:

- It is conveniently located next to existing PVT operations, which will maximize operational efficiency at both sites; and
- The land is vacant;
- The area is large enough for relocation;
- PVT already owns the property;
- It is conveniently located next to existing PVT operations, which will maximize operational efficiency at both sites; and
- There would be few engineering, site development, and environmental impact issues anticipated at this site.
Closure of Current Landfill

PVT has started putting in place the final cover for two areas of the current landfiill. As additional areas of the landfiill reach capacity, PVT notifies the Hawaii Department of Health of its intent to begin final closure activities of those portions. When no more disposal capacity remains, all areas of the C&D landfiill will be closed, and the final cover installed.

After the current landfiill is closed, PVT will continue to monitor and maintain the fiinal cover and storm water management systems and conduct groundwater monitoring, as well as inspect the leachate collection and removal system.

The closed PVT ISWMF landfiill will generally be maintained as open space during the post-closure period and shallow rooted vegetation will be planted. The existing administrative area will be maintained as a headquarters for managing post-closure activities.

Proposed Action: C&D Landfiill

Approximately 75 acres of the proposed 179-acre relocation site would be developed as PVT’s C&D landfiill. The acceptable waste and material sorting activities would be similar to those on the existing PVT site.

The proposed recycling and landfiill site includes fiive cells; the cell closest to the residential area on the southern boundary, Cell 1, would be fiilled first and covered with vegetation, concealing the other landfiill cells from view.

The proposed C&D landfiill cells would be underlain by an engineered composite liner that exceeds the industry standard for C&D landfiills. The impermeable liner prevents leachate from impacting the soils and groundwater beneath the liner.

PVT continues to work with the community to explore potential post-closure land use options.

Proposed Action: Recycling Operations

Approximately 10 acres at the north end of the Project Site would be designated for sorting incoming mixed waste to recover recyclable materials. This area would also accommodate two material recovery devises (MRD: MRD-2 and MRD-3). The MRD processing lines use a combination of mechanized and manual sorting methods to recover recyclable metals, inert materials suitable for aggregate production, soils for landfill cover, and materials suitable for feedstock.

<table>
<thead>
<tr>
<th>Diagram Label</th>
<th>Description</th>
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<tbody>
<tr>
<td>1 DIRT BARRIER</td>
<td>The soil beneath the landfiill is graded toward the center of the planned landfiill cell. The subsequent layer retains that slope to direct leachate to a collection point.</td>
</tr>
<tr>
<td>2 GEOSYNTHETIC CLAY LINER</td>
<td>GCL is an impermeable layer that prevents leachate from entering the soil and ground water beneath the liner system.</td>
</tr>
<tr>
<td>3 HIGH-DENSITY POLYETHYLENE (HDPE) PLASTIC</td>
<td>HDPE is a flexible, 60-millimeter thick plastic that is as hard as roofing shingle. HDPE is rolled out in wide sheets and welded together in place.</td>
</tr>
<tr>
<td>4 GEOTEXTILE LINER</td>
<td>To protect the HDPE from damage due to rocks and debris placed in the landfiill cell, it is covered with highly durable, 18-ounce weight geotextile fabric.</td>
</tr>
<tr>
<td>5 GRAVEL</td>
<td>A 12-inch layer of gravel allows liuids to flow toward the center of the landfiill, where drainage can occur. Once the gravel is spread, another layer of geotextile fabric is rolled into place.</td>
</tr>
<tr>
<td>6 DIRT OR PERMITTED ASH</td>
<td>Two feet of fiine-grained dirt or ash is spread on the last layer of geotextile. This layer, because it is fiine-grained, is more resistant to penetration from wood and other debris and is a fiire barrier.</td>
</tr>
<tr>
<td>7 SOIL</td>
<td>The fiinal layer is two feet of soil and is referred to as the “driving layer” because it protects the liner system from the heavy equipment and truck traffiic.</td>
</tr>
<tr>
<td>8 C&amp;D SELECT WASTE</td>
<td>Select debris that is unlikely to pierce or penetrate the landfiill liner is placed at the bottom of the newly created landfiill cell.</td>
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DIAGRAM NOT DRAWN TO SCALE.

Not drawn to scale.
Proposed Action: Renewable Energy

Gasification (Fig. 4)
PVT proposes to install and operate a gasification unit, TURNWISE® Gasification Technology developed by Biomass Energy Systems, Inc. This technology is already proven, as demonstrated by the success of the installation at Joint Base Pearl Harbor - Hickam. This system would be specifically designed for PVT and located in the sorting area of the Project Site. Gasification of 12 tons of feedstock per day will produce 1,000 kWh of electricity. The gasification unit is largely automated and designed to operate continuously. Operation of the gasification unit would be in accordance with the state law.

Traffic Volume & Operational Hours
During construction and operation, traffic volume of trucks entering the facility and access to the sites will remain relatively the same. PVT does not propose to increase the maximum permitted daily tonnage of C&D waste limit of 3,000 tons per day; therefore, no increase from the current maximum daily truck trips of 300 is anticipated. PVT operates from 7 a.m. to 3 p.m. and discourages early deliveries to avoid noise and diesel odor from trucks. Maximum daily truck trips of 300 is anticipated.

PVT plans and procedures to protect the health and safety of PVT employees, the community, and the environment.

Traffic Volume & Operational Hours

<table>
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<tr>
<th>Hours of operation for customers would be maintained as follows:</th>
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<tr>
<td><strong>Facility:</strong> Monday - Friday 7:00 a.m. - 4:00 p.m. Saturday 7:00 a.m. - 1:30 p.m.</td>
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<tr>
<td><strong>Scale house:</strong> Monday - Friday 7:00 a.m. - 3:00 p.m. (last truck) Saturday 7:00 a.m. - 1:00 p.m. (last truck)</td>
</tr>
<tr>
<td><strong>ACM Acceptance:</strong> Tuesday &amp; Thursday 7:00 a.m. - 1:00 p.m.</td>
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Photovoltaic
To meet Hawaii’s 100% renewable energy goals, PVT plans to install solar panels on 7 acres of the Project Site for recycling facilities, reduce power purchases from Hawaiian Electric Company as well as reduce diesel consumption of trucks. The system cools and removes particulates from the syngas. PURIFIED SYNGAS

Health & Safety Considerations
The relocated facility will continue to operate in a manner that respects the community, conforms with land uses, and is fiscally and environmentally responsible, while complying with all permits and approvals. PVT’s Operations Plan includes plans and procedures to protect the health and safety of PVT employees, the community, and the environment.

Dust
To protect air quality and mitigate dust, the Project Site will include a 750 ft. buffer zone, landscaping, and installation of a dust/litter screen along the southern boundary of the property. Other operational practices designed to mitigate dust include watering unpaved roads and active landfill cells to minimize dust generation.

Litter
The majority of PVT debris is bulky or heavy and unaffected by wind. But to avoid any air-born litter, in addition to the buffer zone, PVT will install and maintain fencing downwind from the landfill area and conduct daily sweeps as part of its litter control program. Active landfill cells will also be covered with an interim soil layer to prevent material from escaping.

Noise
Noise generated from landfill and recycling operations and renewable energy sources would be mitigated through site design and operational controls to avoid excess noise impacts. Roads would be graded with a low slope to deter the need for excessive throttling. PVT has recently purchased a diesel-electric hybrid tracked-type dozer which operates more quietly, also reducing noise levels.

Visual Impacts
The views from ground locations in the valley to Pu‘u Heleakala would not be adversely impacted. The first landfill cell would be closest to the residential areas and act as a visual barrier, concealing from view the remaining operations to the north. The southern face of the landfill cell would be planted for erosion control, further mitigating the scenic impacts from adjacent properties.

Odor & Pests
C&D disposal facilities do not attract significant numbers of flies, rodents, birds, mongoose, or other vectors. Proper application of cover material would discourage use of the site by pests. PVT personnel would be directed to report to supervisors any sighting of vectors and deal with the vectors accordingly. Because of their low organic content, C&D wastes do not typically give off unpleasant odors. Odoriferous loads generally would be identified at the scale house and rejected. However, on occasion, some loads may also be immediately deposited and covered with non-odorous soil.

Water Quality
Leachate
A low volume of leachate (liquid that can drain from a landfill) is anticipated at the project site and it will be managed onsite. C&D waste is characteristically dry and produces significantly less leachate than municipal landfills. The landfill would be graded to direct leachate toward the center of the landfill where it would be collected and reused onsite as dust control. The impermeable liner prevents leachate from affecting the soils and groundwater beneath the liner.

Storm Water
Storm water would be managed by controlled grading on the surface of the landfill and by maintaining an engineered system of drainage ditches, channels, pipes, and basins. Storm water runoff from the developed areas of the project site would be collected in a series of channels located around the perimeter and conveyed into a stormwater basin located at the southwest corner property.
Environmental Impact Statement

PVT is preparing an Environmental Impact Statement (EIS) for the Proposed Action. The EIS provides information on the proposed action, existing conditions, and potential impacts.

The EIS documents will be available online at www.pvtland.com/eis and will be published in the State Environmental Notice (http://oeqc2.doh.hawaii.gov/The_Environmental_Notice).

Comments on the Proposed Action can be submitted online at www.pvtland.com/eis or via email to eis@pvtland.com.

Community Outreach

PVT has a history of investing in the community through its public education and outreach programs, including the following:

- The PVT Scholarship program was established in 2005 and has awarded more than $930,000 to more than 260 college bound seniors at Nanakuli and Waianae High Schools and Kamaile Academy. PVT awards an average of 22 scholarships per year.
- PVT has and continues to provide financial and volunteer support to a variety of organizations and community events, including:
  - Sports teams
  - Community cleanup projects
  - Robotics competitions
  - Boys and Girls Club
  - YMCA
  - Legal Aid Society
  - Project Graduation and other school-based events
  - Wahiawa Correctional Facility
- PVT encourages groups and individuals to tour the facility.
- PVT hosts an informative website and submits a full page “newsletter” of PVT ISWMF activities for publication in the Westside Stories, a community newspaper with a circulation of 15,500 readers.
- PVT provides annual updates to the Nanakuli-Maili Neighborhood Board.
- PVT has a phone number available on their website for complaints and responds promptly (http://www.pvtland.com/contact-us/).

Peer Review of PVT Operations

At the national level, PVT was awarded the Solid Waste Association of North America (SWANA) Gold Excellence Award in the Landfill Management category in 2018.

SWANA’s Excellence Awards Program recognizes outstanding solid waste programs and facilities that advance the practice of environmentally and economically sound solid waste management. This is demonstrated by using effective technologies and processes in system design and operations, advancing worker and community health and safety, and implementing successful public education and outreach programs. Programs must also demonstrate they are fiscally and environmentally responsible through their compliance with all applicable federal, state, and municipal regulations.

PVT achievements that contributed to the award included the following:

- Landfill design: Constructed and operated based on municipal solid waste design standards that exceed the standard practice and regulatory requirements for C&D landfills.
- Critical role in the City and County of Honolulu’s Integrated Solid Waste Management Plan: Designated disposal point for emergency waste (natural disasters) and C&D waste.
- Innovation: (1) use of GPS to track the location of special waste within an inch of accuracy; and (2) use of drones with infrared cameras for early detection of subsurface temperature increases, “hotspots,” indicative of potential for fires that can be avoided by injecting carbon dioxide into the hotspot.
- Waste minimization: PVT is the state’s largest recycler.
- Employee health and safety: Training and wellness programs, safety systems and protocols, and excellent safety record.
- Storm water management: Infrastructure to contain a 100-year flood.

On hand to receive SWANA’s “Academy Award” for best landfill management were PVT’s Ben Yamamoto, Steve Joseph, and Albert Shigemura.