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INTRODUCTION

HAECO at a glance

Hong Kong Aircraft Engineering Company Ltd. (HAECO), a member of the Swire Group with Cathay Pacific Airways as one of the major stakeholders, was established in 1950, and is the only full-service provider at the Hong Kong International Airport. It offers comprehensive line to heavy maintenance packages, including extensive aircraft component overhaul support and Aircraft-on-the-Ground/aircraft recovery service.

The Company boasts approximately 3,400 employees, with around 3,000 staff working at the Chek Lap Kok facility, and the remaining 400 staff at its Tseung Kwan O (TKO) centre. Its one-stop-shop maintenance service is mainly undertaken by the Company’s three major operating divisions:

- **Base Maintenance Division**, located in the CLK Aircraft Maintenance Area;
- **Component and Avionics Overhaul Division**, located in Tseung Kwan O; and
- **Line Maintenance Division** (including Ramp Services), located at the Passenger Terminal Building.

Additionally, the Company has a number of supporting departments specializing in a wide spectrum of professions to facilitate the smooth operation of the Company. In these supporting departments, the Environmental Protection and Industrial Safety Section (EP&IS) – an independent group directly supervised by the Director of Finance – proactively promotes a safe-working culture and awareness of "green" concepts at all levels across the Company. Also, the EP&IS Section continually strives to exceed our own safety and environmental protection standards.
Environmental Management Responsibilities

The Company’s "green" efforts are not only manifested by its corporate organization but also by its company-wide involvement in "green" initiatives. We strongly believe that we achieve success in these initiatives by adopting a well-structured, top-down management approach combining strong leadership with wide staff-based support.

Strong Leadership – Safety & Environmental Steering Committee
At the helm of the Company’s safety and environmental protection initiatives is the Safety and Environmental Steering Committee (SESC), formed in August 1996 with the primary responsibility of formulating an Environmental Management Plan (EMP). The SESC, chaired by Director of Finance, meets quarterly to review and allocate resources for the Company’s safety and environmental issues.

HAECO puts its commitment to environmental protection as part of its Mission Statement.
**Wide Staff-based Support – Environmental Management Representatives**

To consolidate the collective efforts of our "green" initiatives we have a number of Environmental Management Representatives around the company. These representatives work closely with the EP&IS Section to put our EMP into practice on the "shop-floor".

Also, as members in the Safety & Environmental Steering Committee, the EP&IS Section has an important role as the point of contact between the management and the general staff members in the implementation of the Company’s environmental policy. Such a composition of the Environmental Management Representatives aims to achieve the spirit of shared responsibility. As the principal EMP Representatives, the EP&IS Section are responsible for overseeing and coordinating these environmental matters:

- Allocation of sufficient resources (e.g. manpower, financial resources, equipment, external consultants, etc) to correctly implement and establish the EMP.

- Checking chemicals and substances against the Waste Disposal (Chemical Waste) (General) Regulation, to make sure that the Company obeys the statutory requirements related to the identification, handling and disposal of chemical wastes.

- Conducting regular checks on effluent discharges to make sure that the wastewater generated from all operational processes do not exceed the licenced limit.

- Making sure that all environmental licences remain valid (e.g. licences for dangerous goods, chemical waste, effluent discharge, etc.) and, when necessary, apply for the renewal of such licences.

- Implementing a company-wide environmental audit programme, reporting any findings or discrepancies to the SESC for their further action.

- Doing an annual management review of the EMP to make sure it continues to satisfy the requirements of the Airport Authority, the statutory requirements and the requirements of the Company environmental protection policy.

- Making a record of the annual EMP management review, together with recommendations for changes and improvement to the EMP.

- Allocating sufficient resources (e.g. manpower, financial resources, equipment, external consultants, etc.) to properly develop and implement action/response plans arising from the management review, the environmental audit and reports on non-conformance issues during the operation of the facility.
ENVIRONMENTAL POLICY

To align with the Company’s commitment to act in a socially responsible manner in protection and conservation of environmental resources, the Company has issued an environmental policy statement outlining the Company’s initiatives towards effective environmental management. The full text of the policy statement is set out as follows:

HAECO Environmental Policy Statement

HAECO will conform to the legal requirements and endeavor to adopt higher environmental standards.

HAECO will quantify all emissions, pollutants and effluents discharged from operations and minimise the release of such.

HAECO will implement schemes to minimise waste by conserving material resources, recycle waste at source whenever practicable and dispose of all waste in a safe and responsible manner.

HAECO will adopt high standards of operational integrity to minimise the risk of environmental incidents to staff and neighbouring communities by employing safe technologies and operating procedures.

HAECO will encourage awareness of environmental issues amongst staff at all levels, emphasising the responsibility of individuals for environmental performance through appropriate operating practices and training.

HAECO will increase the use of environmentally acceptable materials, equipment and technology in its operations.

HAECO will always take suppliers' environmental performance into consideration in formulating its purchasing strategies.

HAECO will aim to achieve environmental saving and commit to continual improvement on environmental performance.
ENVIRONMENTAL COMMUNICATION

HAECO recognizes that communication serves as an effective means for promoting the "green" cause. As such, the Company strives to maintain good internal communication among staff and promote external communication with the outside parties through the following activities:

External Communication

**Hong Kong Cleaner Production Scheme**

Invited as one of the mentor firms in the Hong Kong Cleaner Production Scheme jointly organized by the Hong Kong General Chamber of Commerce and the Hong Kong Productivity Council, HAECO made a great contribution to enhance industrial supply chain’s value-added capacity. In the closing seminar – the Seminar on Cleaner Production Strategy, the Company as one of the guest speakers introduced and exchanged views on our cleaner production initiatives.

**Wastewi$e Scheme**

Waste reduction is always our prime concern. To mark our success in achieving 5 waste reduction targets in the Wastewi$e Scheme organized by Environmental Protection Department, we were awarded the Wastewi$e logo in July 2003. In the year to come, we endeavour to scale new heights and obtain a gold logo.

**“Towards ‘green’ Workplace & Workshop Management” Seminar**

In November 2003, HAECO was invited by Business Environmental Council to be a supporting organization for the territory-wide seminar, “Towards ‘green’ Workplace & Workshop Management”. It presented a great opportunity for us to introduce our current environmental practices, demonstrate our "green" facilities and share our environmental management experience with other corporations and external environmental groups. In return, the Company acquired valuable insights during the discussion session.
Environmental Meetings

HAECO actively attended various environmental meetings e.g. Group Energy Saving Task Force Meeting, Waste Management Meeting, and Environmental, Health and Safety Database Meeting hosted by Swire Properties, as well as Airport Community Waste Reduction Task Force organized by AAHK. In these meetings, environmental issues from different trades were tabled for discussion and solutions were sought with joint efforts of the attendees in a bid to upgrade the environmental performance of the territory. These meetings provided a good chance for companies from different industries to learn from each other’s success in “green” practices.

Mangrove Planting

In a mangrove planting activity, HAECO and Cathay Pacific staff jointly planted thousands of mangroves in Wong Chuk Wan in Sai Kung. Such a meaningful activity not only helps to retain nutrients in soil and provides a habitat for a wide variety of brackish water fauna, but also enhances staff’s environmental awareness in the close contact with the nature.

Mai Po Visit

To provide a chance for staff to know more about the natural environment, the Company organized a bird watching activity in the Mai Po Marshes. Led by the members of World Wild Fund, our staff feasted their eyes on different species of migratory birds in their walk through selected zones of the reserve.

Visits to Landfill and Refuse Transfer Station

HAECO believes that site visits are an effective way of enhancing staff’s environmental awareness. To deepen staff’s understanding of dry and wet waste segregation and waste dumping, site visits were arranged for our staff to one of the largest landfills in Hong Kong – “WENT” in Nim Wan and the Waste Separation Pilot Facility in the Island East Transfer Station.
Internal Communication

Suggestion Scheme

HAECO has the Suggestion Scheme in place to encourage staff to raise their environmental concerns and give suggestions on further upgrading the Company’s environmental performance. As a token of appreciation, staff are rewarded for their constructive suggestions. This scheme opens up a communication channel for the management to collect feedback from staff and to understand their level of environmental awareness.

Company Newsletter

Our company newsletter - Kong Gei News, regularly gives tips and guidelines on environmental protection issues. With the real-life examples and illustrations, Kong Gei News not only relates the principle of environmental protection to staff’s daily work, but also arouses staff’s interest in “green” practices. Such newsletter serves as an effective tool to enhance vertical and horizontal communication in the Company.

Environmental Notice Board

Environmental Notice Boards, placed in each department, display the Company’s Environmental Policy Statement, posters and news update.

Intranet

In addition to the Environmental Notice Boards, HAECO’s intranet website provides a convenient channel of communication to keep staff informed of the latest environmental news.

Performance Appraisal System

To make sure our staff obey the Company’s environmental policy, we integrate their environmental performance into one of the key performance factors of the Company’s Performance Appraisal System. In other words, their demonstration of environmental commitment is one of the key factors used to determine their overall performance rating for the whole year.
ENVIRONMENTAL TRAINING

We regularly give environmental protection awareness training to our new recruits and staff at the supervisor level.

It is necessary for all new recruits to attend a one-day induction-training course. Environmental protection awareness training is one of the primary modules of this course. The point of this module is to clearly tell the new recruits about our environmental policy, their legal liability related to the environmental ordinances and their responsibilities related to "green" office practices in their daily work.

In addition, we regularly give supervisor-level staff refresher courses to remind them of their responsibilities and duties related to the implementation of our "green" policy, and the monitoring of their subordinate's environmental performance.

Below is an outline of the training course, which we review and upgrade when necessary:

- Introduction of the Company’s environmental policy
- Brief description of Hong Kong’s environmental legislation
- An explanation of the possible negative effects our industry can have on the environment and the related protection and preventative methods we use.
- Introduction of environmental-related facilities
- Environmental objectives and targets
- Understanding the roles and responsibilities of employees related to environmental protection at work

Training materials
GREEN PROCUREMENT

To demonstrate our commitment to environmental conservation, our Materiel Management/Supplies Department practices "green" purchase and makes every effort to influence the environmental performance of our suppliers. In making decisions on new purchases, we consider if the products are environmentally friendly. Thus, our "green" purchasing policy requires us to take into account:

- Zero or minimal pollution potential
- Conservation of resources
- Best long-term consumption savings.

Below are some examples of the environmentally friendly products that HAECO purchases:

- **Paper and recycled name cards** derived from sustainable forests, this helps to prevent unnecessary deforestation.
- **Recycled toner cartridges** that help conserve cartridge-making materials.
- Foam-water mixture of biodegradable and non-corrosive **vehicle cleaning agents**. This helps us decrease our water consumption and also prevent marine environment pollution.
- **Electrostatic spray guns**. Compared to conventional spray guns, these cause the least air pollution because the paint particles bond to the material surface rather than remaining suspended in the air.
- **Abrasive wheels with vacuum sucker**. These make sure that paint particles removed during the stripping process do not escape into the air but are kept in the machine.

- **Ultra-low sulphur diesel** (containing only 0.005% of sulphur – such standard is more stringent than that stipulated in the relevant statutory requirement), this reduces the level of damaging exhaust emissions.
- **"Turco 6776"** a non-toxic, non-phenol content paint stripper.
* Materials that do not deplete the ozone layer, such as HFC-134a refrigerants, FM200 fire extinguishing agent and correction fluids that do not contain 1,1,1-trichloroethane.

* Energy saving products such as T5 fluorescent tubes and LED “Exit” sign lights.
* Water based paints with no volatile organic emissions.
* Euro 3 Standard vehicle engines. These engines consume less fuel and produce less damaging exhaust emissions.
ENVIRONMENTAL PROGRAMME AND PERFORMANCE

Our on-going efforts in energy conservation, chemical waste management and waste recovery, have helped us achieve these results:

Environmental Programme Achievements for 2001 – 2003

<table>
<thead>
<tr>
<th>Environmental Issues</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>General waste reduced (kg)</td>
<td>1.4 million</td>
<td>1 million</td>
<td>0.7 million</td>
</tr>
<tr>
<td>Disposal cost of general waste saved (HK$)</td>
<td>--*</td>
<td>274,400</td>
<td>79,900</td>
</tr>
<tr>
<td>Chemical drums reused (no.)</td>
<td>--*</td>
<td>293</td>
<td>295</td>
</tr>
<tr>
<td>Chemical drums disposal cost saved (HK$)</td>
<td>--*</td>
<td>41,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Lube oil recycled (litres)</td>
<td>14,600</td>
<td>15,200</td>
<td>15,400</td>
</tr>
<tr>
<td>Recycled scrapped vehicle tyres (no.)*</td>
<td>--*</td>
<td>--*</td>
<td>1,068</td>
</tr>
<tr>
<td>Diesel fuel consumption (Litres)</td>
<td>2.4 million</td>
<td>2.3 million</td>
<td>2.4 million</td>
</tr>
<tr>
<td>Electricity consumption (kWh)</td>
<td>21.5 million</td>
<td>20.9 million</td>
<td>19.3 million</td>
</tr>
<tr>
<td>Town gas consumption (MJ)</td>
<td>6.4 million</td>
<td>6.2 million</td>
<td>5.7 million</td>
</tr>
<tr>
<td>Recycled office paper (kg)</td>
<td>840</td>
<td>1,100</td>
<td>4,400</td>
</tr>
<tr>
<td>Recycled cardboard (kg)</td>
<td>12,300</td>
<td>29,500</td>
<td>18,600</td>
</tr>
<tr>
<td>Recycled aluminium cans (kg)</td>
<td>--#</td>
<td>50</td>
<td>360</td>
</tr>
<tr>
<td>Recycled plastic bottles (kg)</td>
<td>--#</td>
<td>70</td>
<td>360</td>
</tr>
<tr>
<td>Recycled aluminium sheets (kg)</td>
<td>18,410</td>
<td>6,140</td>
<td>6,140</td>
</tr>
<tr>
<td>Metal turnings (kg)</td>
<td>1,120</td>
<td>1,570</td>
<td>960</td>
</tr>
<tr>
<td>Recycled printer cartridges (pieces)</td>
<td>232</td>
<td>399</td>
<td>461</td>
</tr>
<tr>
<td>Purchasing costs saved by the use of recycled printer cartridges (HK$)</td>
<td>58,370</td>
<td>106,880</td>
<td>90,960</td>
</tr>
</tbody>
</table>

“*” denotes that the programme has yet to be implemented.
“#” denotes that the contractor is not yet able to supply relevant statistics.
The following charts show HAECO’s “green” achievements for 2001 – 2003.

**Weight of general waste disposal**

<table>
<thead>
<tr>
<th>Year</th>
<th>Kg (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>1.4</td>
</tr>
<tr>
<td>2002</td>
<td>1</td>
</tr>
<tr>
<td>2003</td>
<td>0.7</td>
</tr>
</tbody>
</table>

**Annual weight of metal scrap collected by HAECO for recycling**

<table>
<thead>
<tr>
<th>Year</th>
<th>Metal turnings</th>
<th>Aluminium sheets</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>1,120</td>
<td>18,410</td>
</tr>
<tr>
<td>2002</td>
<td>1,570</td>
<td>6,140</td>
</tr>
<tr>
<td>2003</td>
<td>960</td>
<td>6,140</td>
</tr>
</tbody>
</table>
Annual Weight of Recyclable Waste collected by HAECO

<table>
<thead>
<tr>
<th>Kg</th>
<th>Aluminium cans</th>
<th>Plastic bottles</th>
<th>Office paper</th>
<th>Cardboard</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>840</td>
<td>50</td>
<td>70</td>
<td>0</td>
</tr>
<tr>
<td>12,300</td>
<td>1,100</td>
<td>360</td>
<td>360</td>
<td>18,600</td>
</tr>
</tbody>
</table>

Printer cartridges recycled

<table>
<thead>
<tr>
<th>pieces</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>232</td>
<td>2001</td>
</tr>
<tr>
<td>399</td>
<td>2002</td>
</tr>
<tr>
<td>461</td>
<td>2003</td>
</tr>
</tbody>
</table>
Riding on our past success, we have set even higher environmental standards in the Environmental Programme for 2004.

**Environmental Programmes for 2004**

<table>
<thead>
<tr>
<th>Environmental Issue</th>
<th>Objective</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy Conservation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity consumption</td>
<td>To use and save electricity effectively</td>
<td>Implement energy conservation programme to achieve a further 5% energy reduction.</td>
</tr>
<tr>
<td>Town gas consumption</td>
<td>To optimize town gas consumption in canteen</td>
<td>Use energy efficient steam cabinets to save town gas consumption by 5%.</td>
</tr>
<tr>
<td><strong>Water Conservation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water consumption</td>
<td>To prevent water wastage</td>
<td>Set water conservation guidelines to optimize water consumption.</td>
</tr>
<tr>
<td><strong>General Waste Reduction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial and industrial waste</td>
<td>To reduce waste produced from our daily operation</td>
<td>Avoid waste generation during maintenance. Recover as many recyclable waste products as possible. Reduce waste disposal weight by 5% annually.</td>
</tr>
<tr>
<td>Environmental Issue</td>
<td>Objective</td>
<td>Target</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Chemical Waste Reduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aircraft fuel</td>
<td>To reduce aircraft fuel disposal quantity</td>
<td>Research the possibility of recycling aircraft fuel to low-grade diesel fuel. Reduce aircraft fuel disposal volume by 10%-15%.</td>
</tr>
<tr>
<td>Chemical waste drums</td>
<td>To reduce waste drum disposal into landfill</td>
<td>Research the possibility of washing and reusing drums as containers. Compact drums to reduce disposal volume by 80%. Cut disposal quantity over generation quantity by 50%.</td>
</tr>
<tr>
<td>Vehicle battery waste</td>
<td>To extend the useful life of vehicle batteries</td>
<td>Research the possibility of extending the useful life of vehicle batteries by 20-30%.</td>
</tr>
<tr>
<td>Chemical consumption in wastewater treatment plant</td>
<td>To better control the quantity of chemicals consumed in wastewater treatment to prevent wastage</td>
<td>Conduct a feasibility study on the modification of wastewater treatment plant to optimize the application of chemicals to treat wastewater.</td>
</tr>
<tr>
<td>Resources Conservation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective use and recycling of paper, cardboard, printer cartridges and metal</td>
<td>To increase the waste recycling quantity in order to minimize waste disposal</td>
<td>Increase the recovery rate of recyclable waste by more than 20%</td>
</tr>
<tr>
<td>Indoor Air Quality (IAQ) Monitoring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indoor air quality (IAQ) measurement</td>
<td>To monitor IAQ in offices and achieve the good class level set in EPD’s guidelines</td>
<td>Perform IAQ measurement for 80% of HAECO’s offices</td>
</tr>
</tbody>
</table>
ENERGY CONSERVATION

Energy conservation not only benefits the environment but also helps the Company reduce unnecessary expenditure. Through our Energy Conservation Programme, we strive to keep our energy consumption to a minimum. Below are some of our energy conservation facilities currently in use (See Appendix I for the location of the energy conservation facilities):

Energy saving in air-conditioning
- Install heat recovery run-around coil for category 5 dangerous goods store
- Install inverter driven with CO2 feed-back controls for the Primary Air Units and Fresh Air Fans

Energy saving in lighting
- Remove unnecessary fluorescent lamps
- Retrofit T5 luminaries for line maintenance terminal stores
- Provide natural lightings for hangar use
- Install motion sensors in store areas
- Install photo sensors in open staircases and windowed areas
- Use floodlight economizers inside the hangar
- Install ultra high efficiency LED “EXIT” lights
- Replace conventional fluorescent lighting ballasts with electronic ones
- Install solar-cell lighting in a remote guard house

Left: CO2 Inverter
Right: Heat recovery run-around coil

Natural lightings for hangar use
Solar-cell lighting used in a guard house
Energy saving in building service and kitchen equipment

- Operation of passenger lifts is suspended during non-office hours and at weekends.
- Use new, high-efficient, town-gas steam cabinets and Chinese steamers

Energy consumption

Compared to 2002, the electricity and town gas consumptions decrease by 7.8% and 8.6% respectively in 2003. The effectiveness of our Energy Consumption Programme is proven by the year-on-year decline in electricity and town gas consumption shown by our monthly energy bill.

### Summary of Monthly Electricity Consumption

<table>
<thead>
<tr>
<th>Month</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>1,890</td>
<td>1,115</td>
<td>1,030</td>
</tr>
<tr>
<td>Feb</td>
<td>1,890</td>
<td>1,115</td>
<td>1,030</td>
</tr>
<tr>
<td>Mar</td>
<td>1,890</td>
<td>1,115</td>
<td>1,030</td>
</tr>
<tr>
<td>Apr</td>
<td>1,890</td>
<td>1,115</td>
<td>1,030</td>
</tr>
<tr>
<td>May</td>
<td>1,890</td>
<td>1,115</td>
<td>1,030</td>
</tr>
<tr>
<td>Jun</td>
<td>1,890</td>
<td>1,115</td>
<td>1,030</td>
</tr>
<tr>
<td>Jul</td>
<td>1,890</td>
<td>1,115</td>
<td>1,030</td>
</tr>
<tr>
<td>Aug</td>
<td>1,890</td>
<td>1,115</td>
<td>1,030</td>
</tr>
<tr>
<td>Sep</td>
<td>1,890</td>
<td>1,115</td>
<td>1,030</td>
</tr>
<tr>
<td>Oct</td>
<td>1,890</td>
<td>1,115</td>
<td>1,030</td>
</tr>
<tr>
<td>Nov</td>
<td>1,890</td>
<td>1,115</td>
<td>1,030</td>
</tr>
<tr>
<td>Dec</td>
<td>1,890</td>
<td>1,115</td>
<td>1,030</td>
</tr>
</tbody>
</table>

 kWh
Town gas consumption

Summary of Monthly Town Gas Consumption

- 2001
- 2002
- 2003
WATER CONSERVATION

The unique nature of aircraft maintenance entails the consumption of large quantities of water. However, we always try, and actively look for new ways, to keep our water use and wastage to an absolute minimum. Our water conservation efforts include:

- Use automatic shut-off systems in all faucets inside toilets
- Signs are posted to remind staff of using water wisely.
- Use biodegradable cleaning agents for ramp equipment cleaning
- Ensure our staff comply with the Company’s policy of eliminating sources of waste by linking their environmental performance to their performance appraisal.

Water conservation is only one part of our many initiatives of water management. Given the inevitability of generating wastewater in the course of operation, wastewater treatment is always our prime concern. To avoid any potential pollution, we have our own specially-designed Wastewater Treatment Plant to treat wastewater from these different sources (See Appendix II for the location of wastewater treatment facilities):

- Rinse water from paint stripping processes inside the hangar;
- Floor washing and spillage clean-up from the Hangar, Backshops Building and Auxiliary Buildings;
- Used solutions from the Corrosion Treatment and Electroplating Workshops;
- Condensate drains and overflows in the Backshops and Auxiliary Buildings (Base Maintenance Division);
- Wastewater from aircraft and vehicle servicing and maintenance procedures,
  and
- Wastewater from Ground Servicing Equipment cleaning procedures.

We also have a small-scale wastewater treatment station is tailor-made to treat wastewater from ramp equipment cleaning procedures.

In addition, a sophisticated underground oil and grease tank is used to separate oil and grease from the kitchen wastewater before its release into the foul sewer. Also, our caterer daily cleans all under-sink grease traps and desludges the canteen effluent twice a month.

Our efforts to maintain a high quality level of canteen effluent contributes to our successful application for surcharge reduction. This helped us save the Drainage Services Department trade-effluent surcharge by more than $60,000 in 2003.
WASTE MANAGEMENT

As a socially responsible company, HAECO is committed to easing the ever-mounting pressure on the limited landfill areas by upholding the principle of The 4 Rs – Reuse, Recycle, Reduce and Replace.

As part of our waste management policy, the Company, in close collaboration with our waste management contractors, is always looking for ways to increase the utilisation of all reusable and recyclable materials. We handle and dispose of all unreusable/non-recyclable waste in strict compliance with our own waste management policy, the statutory requirements and the related environmental standards.

Waste management in the hangar and on the ramp

<table>
<thead>
<tr>
<th>Type of Waste</th>
<th>Waste Management Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Waste</strong>&lt;br&gt;(See Appendix III for the location of collection points for recyclable waste)</td>
<td></td>
</tr>
<tr>
<td>General refuse from aircraft cleaning, daily workshop operations (e.g. broken pallets and packaging), canteen (including food scraps) and offices.</td>
<td>All suitable waste is compacted, containerized and transported by an approved contractor to the North Lantau Refuse Transfer Station (NLRTS).</td>
</tr>
<tr>
<td>General refuse from operations in the Passenger Terminal Building e.g. aircraft servicing and cleaning, workshop operations and offices.</td>
<td>The refuse is transferred to the refuse collection points in the Passenger Terminal Building operated by AA’s waste management contractor. The waste is compacted before disposal.</td>
</tr>
<tr>
<td>Throughput for carton boxes and paper</td>
<td>Waste is compacted before disposal</td>
</tr>
<tr>
<td>Waste from HAECO’s clinics</td>
<td>Clinical/medical waste is handled and collected separately by a licensed clinical waste collector.</td>
</tr>
<tr>
<td>Aircraft lavatory waste</td>
<td>Specialized ramp equipment removes the lavatory waste directly into the AA designed &quot;Trichurator&quot;.</td>
</tr>
<tr>
<td>Recyclable materials, such as metal scraps, (e.g. aluminum sheets, copper and steel turnings), vehicle tyres of ramp equipment, and office waste (e.g. paper, toner cartridge, computer waste, cardboard and plastics)</td>
<td>Collected separately by licensed recycling companies for recycling.</td>
</tr>
<tr>
<td>Type of Waste</td>
<td>Waste Management Practices</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Chemical waste</strong></td>
<td>(See Appendix IV for location of Chemical Waste Management Facilities)</td>
</tr>
<tr>
<td>Aircraft fuel (kerosene)</td>
<td></td>
</tr>
<tr>
<td>Used aircraft lube oil / hydraulic oil</td>
<td>Collected by a licensed chemical waste contractor – Enviropace Ltd. for disposal</td>
</tr>
<tr>
<td>Waste paint and thinners</td>
<td></td>
</tr>
<tr>
<td>Used battery acids</td>
<td></td>
</tr>
<tr>
<td>Used rags</td>
<td></td>
</tr>
<tr>
<td>Used empty chemical drums (200-L)</td>
<td>Compacted to reduce disposal size and stored into 200-L drum for collection and disposal by Industrial Waste Disposal Division</td>
</tr>
<tr>
<td>Used chemical cans</td>
<td></td>
</tr>
<tr>
<td>Used vehicle lube oil</td>
<td>Collected by Dunwell Industrial (Holdings) Ltd. for recycling</td>
</tr>
<tr>
<td>Used non-halogen organic solvents</td>
<td></td>
</tr>
<tr>
<td>Waste batteries</td>
<td>Collected and disposed by licensed chemical waste collectors</td>
</tr>
<tr>
<td>Sludge from wastewater treatment</td>
<td>Disposed of with general refuse as approved by EPD</td>
</tr>
<tr>
<td>Chemical waste</td>
<td>Drained-off aircraft fuel, used engine oil, hydraulic oil and their empty containers, and used rags are all collected in Base Maintenance Division for final disposal every day</td>
</tr>
</tbody>
</table>
Commercial and industrial waste reduction measures

In addition to fully utilizing the recyclable/reusable materials, waste reduction also tops our action list. Below are our office waste reduction measures:

- Use double-sided photocopying and printing;
- Reuse envelopes for internal circulation;
- Use internal electronic communication (email) and electronic filing to reduce paper consumption;
- Use recycled printer cartridges and recycled type paper; and
- Allocate segregated bins to all departments for paper and printer cartridge recycling. This encourages our staff to improve their "green" habits and environmental protection awareness.

Wastewi$e Scheme in 2003

In recognition of our ongoing efforts in waste reduction in 2003, the Environmental Protection Department awarded the Company the "Wastewi$e Logo". By using this logo, we not only show our customers, suppliers and the public that we are dedicated to protecting the environment and reducing waste, but it also sets a good example in the industry for our business partners to follow suit.

In one year we have achieved these five waste reduction targets:

1. Reduced the total quantity of commercial and industrial waste produced from our business operation by more than 18%
2. Saved more than 80% of our used toner cartridges from disposal through the Used Toner Cartridge Collection Programme.
3. Bought recyclable toner cartridges to support the waste recycling programme.
4. Saved 100% of our scrapped vehicle tyres for collection by the approved tyre recycling agency who recycles tyres to make rubber products.
5. Dedicated several sets of 3-coloured segregation bins to collect recyclable waste and help implement our waste segregation programme.

Minimize disposal through repair

To prevent wastage, our workshop staff refurbish and repair our worn-out or obsolete office furniture, this includes such things as wooden desks, cabinets, book-shelves, racks, and sofas.
Snapshots – Facilities for Waste Management

HAECO’s self-invented chemical drum compactor

Chemical waste segregation inside the hangar

Collection point of aluminium sheet for recycling
HOUSEKEEPING

HAECO realizes a clean and tidy working environment is paramount not only for our operation but also for the health and safety of the staff. Therefore, we use these routine procedures to keep a high standard of housekeeping around the company:

- Daily office furniture cleaning, carpet surface cleaning, vacuuming and removal of office waste done by our cleaning contractor
- Deep carpet cleaning in offices once a month
- Pest control once a month in offices, and twice a month in both the canteen and the clinic
- Daily cleaning of hangar floor done by our cleaning contractor
- Daily check on the housekeeping of the hangar and backshop by the engineering staff

To make sure our staff cooperate with the good housekeeping policy, their performance in this area is linked to their annual performance appraisal.

To maintain good housekeeping, HAECO has an inventory of various kinds of aircraft parts, chemicals and commercial goods. All inventory records are computerized to allow staff to keep track of the stock quantity and update the inventory record in an efficient way.

To make sure we store materials correctly (especially chemicals and dangerous goods), they are all categorized and stored in the designated areas related to their properties and potential hazards such as D.G. stores. For easy identification, we display the correct signs in these designated areas.

Aircraft parts are kept in an orderly manner in our store.
NOISE CONTROL

After our relocation from Kai Tak, the noise we make from our maintenance activities in Chek Lap Kok has little or no effect on the surrounding environment. However, the noise we make inside our premises is still our main concern.

Aircraft engine ground runs and aircraft auxiliary power unit (APU) operations

To keep the noise level of aircraft engine ground runs to the minimum, all engine and APU ground running is done in the Airport’s Engine Run-Up facility (See Appendix V for the location of Engine Run-Up facility). Since it is quite far from the main building and has a good noise-reducing barrier, the effects of noise on our staff is negligible.

Double-glazed windows

Double-glazed windows in our offices prevent aircraft noise impact on our staff. This measure effectively creates a silent office environment.

Noise assessment

We conduct regular noise assessment checks to clearly identify the equipment, operational procedures or activities (e.g. metal forming) that cause excessive noise. The results of these checks help us determine the areas where it is necessary for our staff to use hearing protection equipment, e.g. ear-plugs and ear-muffs. Besides, the specified hearing-protection warning signs are displayed in all these areas and on the equipment to remind staff of wearing the necessary hearing protection devices.

Noise controlled equipment

All plant and equipment is subject to thorough specification, installation and maintenance in respect of noise generation and attenuation. It is illustrated by our efforts to introduce equipment with better noise control, e.g. Ground Power Unit and Air-conditioning Unit, which keep the noise level below 90 db(A).
AIR QUALITY CONTROL

Good air quality is important to our health. Therefore, we have introduced a number of facilities to improve the air quality around our CLK premises, such as in the office building, workshops, hangar, company clinic and canteen.

Air quality control in offices

Our central air-conditioning system is water-cooled type and the water drawn from the cooling tower is sterilized by UV treatment before discharge to the condenser of the chillers in order to keep our air supply free of airborne bacteria.

In addition, each department follows an air-duct cleaning schedule to make sure that office air supply stays clean and fresh.

Air quality control in clinic

An UV photo-oxidation air purifier is installed in the company clinic’s air duct to prevent the growth of airborne bacteria, mold and other micro-organisms.

No smoking policy

To keep our working environment clean and safe, HAECO has implemented no smoking policy in line with the Swire Group’s No Smoking Policy. The Policy, stipulated in the Company’s Administration Manual, only allows smoking in the designated areas during designated periods. Outside the designated areas and times, smoking is prohibited.

Air quality control in smoking areas

To cater for those staff who do smoke, we have dedicated smoking areas in the CLK staff canteen and ramp tea-house. Despite the provision of these areas, staff are only permitted to smoke during meal times (i.e. the breakfast, tea, lunch and dinner periods). To remove the smoke particles and clean the air in these areas, electrostatic precipitators are installed in these smoking areas.
Carpet cleaning

Our monthly office-carpet cleaning programme aims to make sure that the environment stays clean and tidy, and that the growth of micro-organisms is prevented.

Aircraft spray paint venting in hangar

Since some paint-spraying and stripping procedures produce paint fumes and airborne paint particles, a dedicated extraction and ventilation system is used in the hangar paint bay to remove the particles and keep the air in the working environment contaminant-free.

Local ventilation inside various workshops

In workshops where we do component cleaning, painting, electroplating, heat and corrosion treatment, metal-to-metal bonding and sheet metalwork, dedicated local extraction systems are installed to remove air pollutants caused by these activities. All exhaust air, before its release to the atmosphere, passes through and is treated by the eight water scrubbers installed on the roof (See Appendix VI for the location of the water scrubber).
TRANSPORTATION

As well as aircraft maintenance, HAECO repairs and does maintenance on its fleet of vehicles and ramp equipment. Because of the possible pollution these activities cause, we follow the "green" measures shown below to prevent environmental damage:

- Use biodegradable detergents to clean ramp equipment.
- Retread worn vehicle tyres and recycling of scrapped tyres.
- Recover exhausted car batteries to extend their useful life for 1 – 2 years or even longer.
- Use gasless ionatronic mass-capacitor fuel-systems. These systems make sure the fuel is completely burnt which reduces to a minimum the emission of unburnt hydrocarbons, carbon monoxide and nitrogen oxides. They also give us a fuel consumption saving of more than 30%.
- A scheduled vehicle maintenance and refurbishment programme. This makes sure our vehicles operate at maximum efficiency giving further savings in fuel consumption.
- Black Smoke Emission Testing. Our Equipment Maintenance Department and the Airport Authority Vehicle Examination Centre do this twice a year on all our vehicles.
- Use ultra-low sulphur diesel (containing 0.005% of sulphur) in ramp equipment to produce cleaner emission.
- Install particulate reduction devices on all our vehicles with a gross vehicle weight (GVW) of less than 5.5 tonnes: this significantly improves the emission quality.
- Use non-ozone depleting materials (such as HFC -134a refrigerant) in vehicle air-conditioning systems.
- Turn off engine when ramp equipment is idle or on standby.
- Recirculate the cleaning solution used to clean vehicle parts during maintenance work. As an alternative to flushing the used solution away, we give it back to the supplier for recycling.
• Use mechanical paint removal processes as an alternative to chemical paint removal.

• Use spray guns featuring high-volume and low-pressure painting to lower the volatile organic compounds emission and to save paint consumption by 20%.

• Schedule the transport services to pick up staff travelling between the Base Maintenance Division in CLK Aircraft Maintenance Area and the Line Maintenance Division on the ramp, and within the Apron Area. This improves transportation efficiency, minimizes pollutant emission and saves fuel consumption.
Appendix I: Energy Conservation Facilities
Appendix II: Wastewater Treatment Facilities
Appendix III: Waste Recovery Points
Appendix IV: General and Chemical Waste Management Facilities
Appendix VI: Air Cleaning Devices