

CONTACT WITH CLIENT

Green Skip Services' clients are mostly from the industrial sector. Clients contact GSS either for a simple quote for the disposal of waste material or for guidance and advice on waste management. GSS generally offers this advice prior to setting up a waste management system in place and offers the necessary training to personnel so that the endeavour will be a success.

COLLECTION OF MATERIAL

A) Non Hazardous Waste:

Following the agreement signed with the client, GSS will provide the right waste container to the client. The volume and type of container will be chosen, based on the initial waste calculations during the previous visits. The containers may be large metal skips of dimensions varying from 4.55 cubic metres to 14 cubic metres. Skip compactors may also be provided for sites with a high generation. Colour coded bins are also placed in areas where the waste fractions are various, but not in very large quantities. Generally corresponding colour coded bins are also in place at the generation point and when full these are emptied in the larger 1100 ltr bins. The smaller bins range from 60 litres to 360 litres. The frequency of collection will depend also on waste generation by type or waste storage area available at the client's site as well as the client's request. Each collection is recorded on a service chit and a copy is handed to the client at time of service. The service chit will include details of the client, the driver, the waste type, quantity and approximate weight and the date. Both the driver and the client sign the service chit as proof of service. Collection and transport is effected by means of either a skip loader, van or on site emptying of the waste container by means of a refuse compaction vehicle (RCV). All waste containers transported are taken to the GSS facility.

Waste may consist of:

- Paper and cardboard
- Glass
- Wood
- Metal
- Plastics
- Mixed waste
- Household waste
- Bulky waste
- Inert waste
- Textiles
- C& D Waste
- Other waste falling in this category

The drivers inspect the waste visually prior to it being loaded into the van.

Incoming waste containers are placed in the quarantine area (area 9) from where these are gradually tipped inside the sorting shed (area 8) or directly into larger containers as per requirement and directions given by the site manager. Bins are then washed and placed in the 'ready' area (area 24) awaiting to be loaded again. The material is then ready to undergo one or more of the operations.

B) Hazardous Waste:

This waste may consist of: (non exhaustive list)

- several types of chemical and industrial waste, including solvents, chemicals, sludges with various contaminants

- pharmaceutical waste
- expired medicines
- aerosols
- laboratory chemicals
- clinical waste
- medical waste
- cytotoxic waste
- oil sludges
- gases
- radioactive waste (spent)
- batteries
- batteries and accumulators
- WEEE
- Asbestos
- Gas cylinders
- other wastes that are generated and require repackaging and storage for final treatment and disposal, both local and at foreign facilities

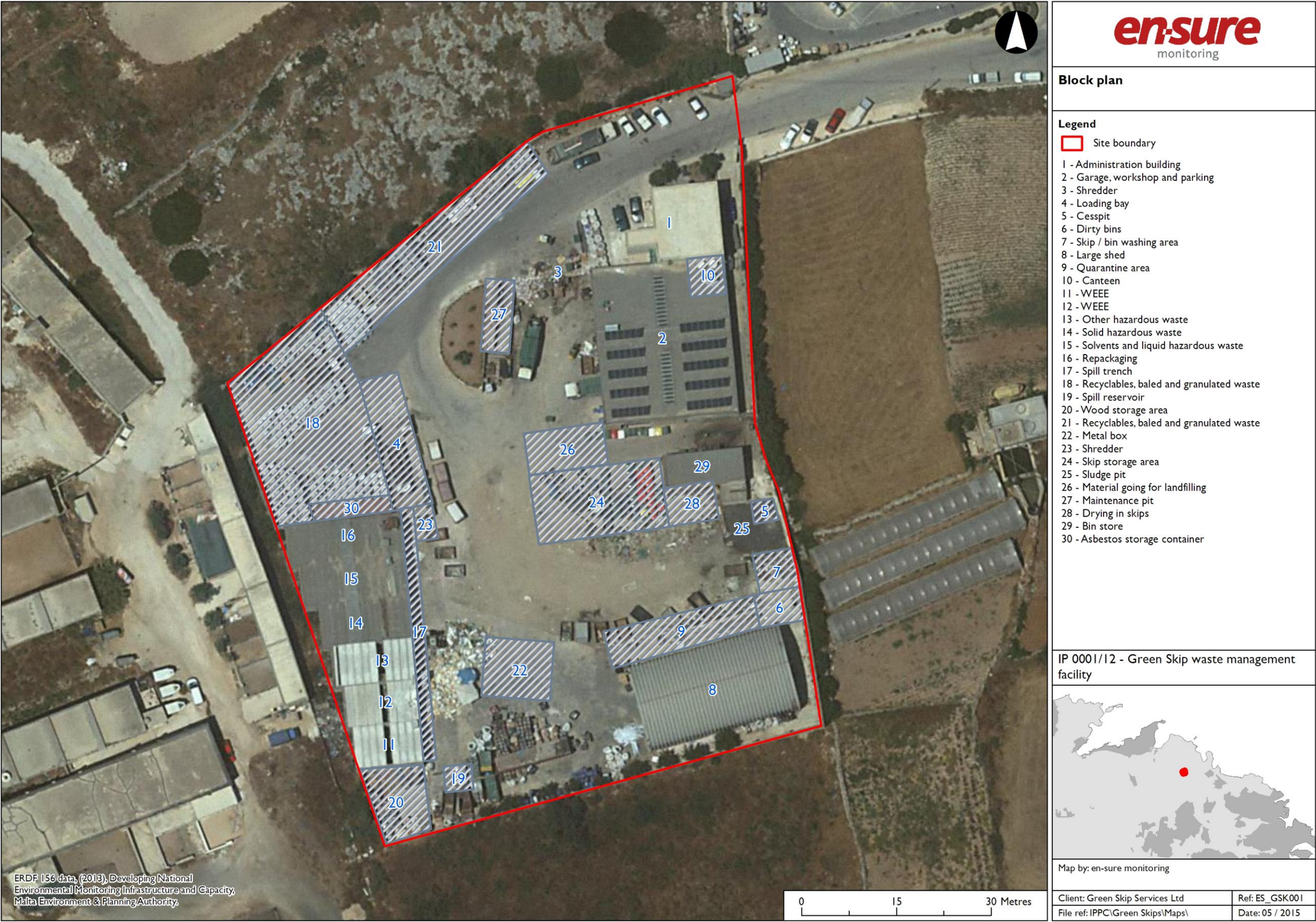
The initial stages are same as those for non hazardous waste, however a MEPA permit - Consignment Permit (CP) is required to transport the waste, which waste is then accompanied by a Consignment Note (CN), a tracking document that will give details of the movements of the waste. Drivers must also undergo a Transport of Dangerous Goods Course (ADR) course, in order to understand the type and hazard nature of the waste, how to transport it, what precautions to take and how to deal with any spillages in case this should happen. Most importantly the carriage of the waste itself. GSS has trained the drivers as well as those persons who handle the waste and repackage it.

Once material arrives at the facility it is unloaded in areas 11 to 16 (hazardous waste sheds), weighed on a platform scale and relabelled and then placed in the respective dedicated area as indicated by the site manager. The waste will be repackaged according to instructions given by the receiving facility, which could be local or foreign (refer to procedure 10 for further information). However, where possible repackaging is avoided to prevent double handling of waste, and GSS endeavours to ensure that clients provide material already packaged in a suitable manner as far as possible.

Each transport of waste is accompanied by a service chit which the company uses to enter information for invoicing purposes and for record keeping. The duly filled CN, finally signed by the site manager, is then forwarded to the operations manager for record keeping.

The processes occurring at the GSS facility are described in the following procedures. Designated areas for these processes have been identified, as shown in Figure 1.

Figure 1: Site layout



PROCEDURE 1: SORTING:

Material is deposited or tipped inside the shed (area 8) on the ground - sorting area where waste fractions are separated manually by the trained workers. Material also enters the shed in wheeled bins of various capacities. These are also manually sorted. Material is segregated by type and further segregated by similarity in order to obtain as clean a waste as possible, as generally requested by the buyers. Large loads are also deposited on the ground and initially separated and again further separated to obtain the best results in material quality. After the material is sorted it is moved to the area earmarked for the particular process, i.e, baling, shredding or granulation (also in area 8). This process also produces rejects – materials that are either not suitable for recycling and were mistakenly placed with the recycling material by the client. These materials are then separated from the rest at the initial stages and sent directly for landfilling on a daily basis. Personnel working in the sorting area are trained to identify the various fractions, since this is a crucial part of the exercise, even the different plastic types which are segregated accordingly. Personal protective clothing is worn at all times.

PROCEDURE 2: BALING:

Baling equipment (also located inside the shed in area 8) is used to reduce the volume while compacting the recovered material in order to obtain the highest possible weight when shipping. Baling equipment is available in different output versions. A person will manually feed the baler with material that had already been sorted. Resulting bale is weighed and stored awaiting export or local sale. As soon as the baler is full an indicator light will alert the user and the machine will stop baling. The bale is then turned out and ties secured. The bale is then removed from the baler with a forklifter and taken to the specific area earmarked for the storage of the particular material. The material will remain in storage (in areas 18 and 21) until it is sold. Personnel are trained as to the safe use of this equipment and the necessary personal protective clothing is worn. Maintenance on the equipment is regular and done inhouse, and supervised by our own engineer.

Baling is the preferred process when the reclaimed materials, such as cardboard, paper, plastics, metals, aluminium, textiles and other materials, need further processing prior to recycling. It is however a very convenient way of reducing the volume but at the same time allowing further sorting.

- Materials that are baled include paper, cardboard, paper and printed material, textiles, cans in both metal and aluminium, other items that can be so processed. Baling is used as a means of volume reduction. Baled material can fit better in a container which is going to be exported for recycling as all space will be utilised.
- Destruction purposes. At times larger than usual items that require destruction are placed in the baler and crushed. This will render the item as unsaleable and thus the destruction purpose would have been achieved. Resulting material are then either landfilled or, as happens most of the time, recycled.

Storage of non-hazardous material after baling typically occurs in areas 18 and 21.

PROCEDURE 3: GRANULATION:

Buyers require some plastics to be grinded rather than baled. Grinding reduces the volume by cutting the material in small fractions, generally around 6 cm - 8cm in size, but sieves of different sizes can be utilised. The material is thrown into the hopper and passes through a series of knives that chip away at the material until this is small enough to pass through the sieve. The material is then sucked up into a

jumbo bag of approximately 1 cubic metre that is directly attached to the tube. Personnel are trained as to the safe use of this equipment and the necessary personal protective clothing is worn. Maintenance on the equipment is regular and done inhouse, and supervised by our own engineer.

Materials that can be granulated:

- ***Plastics;***
Some plastics generally undergo this process as a pre requisite for recycling. The material is separated by type and passed through the granulation process. The system automatically deposits the material into an attached jumbo bag. The bag is stored awaiting export. Granulation is a preferred pre recycling option when the material is completely clean and with no contamination.
- ***Off Spec products:***
At times some off spec products require destruction by granulation due to their small size. Special sieves are placed in the granulator which then determine the size of the final material. This is especially suitable in the electronics industry when small items require destruction. The material would then be exported for recycling.
- ***Paper / confidential information ;***
Finely shredded paper is also achieved by granulation. This type of destruction is requested for highly sensitive information. The paper can be utilised as animal bedding, and absorbent.

The granulator is also located in the shed (area 8).

Storage of non-hazardous material after granulation typically occurs in jumbo bags in areas 18 and 21. Storage of WEEE occurs in jumbo bags in areas 11 and 12.

PROCEDURE 4: SHREDDING:

The shredder is a heavy duty piece of equipment used for various shredding tasks. There are two shredders on site, in area 3 and area 23. Their main use is volume reduction, but they are used also to destroy confidential material, expired products, counterfeit products, off spec products, wood, cardboard and paper and similar. The shredder is fitted with a hopper and loading is done from a level that will allow the material to fall in either a skip or a jumbo bag. The shredder is fitted with a shading cover to minimise the release of airborne particles; another cover will be fitted for the capture of finer material. Additionally, shredding is avoided on very windy days.

Apart from solid materials being shredded, it is also possible to destroy large volumes of containers filled with liquid material. In this case a tray with a sieve structure allows the liquid to go through and captures the solid part which is generally glass, metal /aluminium or plastic. The solid fraction is passed on for recycling whenever this is possible, whilst the liquid part is neutralised according to instructions given by the Water Services. The resulting mixture is then disposed of off site. Shredded material can be sold, exported or reused. Personnel are trained as to the safe use of this equipment and the necessary personal protective clothing is worn. Maintenance on the equipment is regular and done inhouse, but supervised by our own engineer.

Shredding is also one of the processes used to turn waste into a product, as follows:

- **Procedure 4a: Mulching:**

The wood chosen from the material entering the facility must be clean, without any sort of paint or chemical. The wood must also be suitable for shredding (soft wood) for it to be suitable for mulching. This material is left to darken prior to being shredded or is shredded and then allowed to 'rest' in order to darken as it would have reached the start of decomposition. The shredded material is received into jumbo bags. This material is then stored in areas 18, 20 or 21, and will be finally used as a spread on soil, or as a top layer in planters to avoid the growth of weed and keep the soil moist eliminating the need to water frequently. The material is also accepted at the biosite operated by WasteServ. The material will eventually become naturally composted on the ground and act as a nutrient and soil enhancer. Through mulching another product is created, thus lengthening the life of the material and replacing the use of other materials.

- **Procedure 4b: Animal Bedding:**

Sorted clean cardboard and paper are passed through the shredder in order for the material to be shredded to be used as animal bedding. The material is bagged and sold. Any storage on site occurs in area 18 / 21. Utilising this material is giving a second life to the paper and cardboard. The material is a very good quality absorbent and its use as animal bedding will eventually end as manure and natural fertiliser.

Other materials shredded include:

- **Procedure 4c: Mattresses and other Bulky Items**

All vehicles are weighed on Wasteserv's weighbridge at Magtab, prior to entering GSS facility. The Weight chit is presented at the office and a service chit is filled and the weighbridge chit is attached to the service chit. The driver is also given his own copy. He then proceeds to unload the mattresses close to the shredder, as indicated to him by the site supervisor and the site manager giving directions. The driver then leaves, after having completed this initial operation.

The mattresses are generally shredded within 24 hours from arrival at the facility. The resulting shredded material is collected in skips and the now shredded material is deposited in the landfill. Any storage before landfilling is carried out in area 26; it is removed on the same day when shredding occurs as GSS makes sure there is a truck available to remove the waste on the same day. Records of truck number, date, generator, weight and final weight and disposal of shredded mattresses chit are entered in the records. Only MEPA authorised vehicles are allowed entry with waste at the GSS facility. The mattresses are shredded in order to reduce the volume and thus minimise the space taken. Large items cannot at times be landfilled in their actual state, but require shredding or size and volume reduction in order to be landfilled. The shredder is used most of the time in this case and items shredded are mattresses, small furniture, cushions, and similar items that through shredding a reduction in size is obtained.

- **Expired and damaged/Off spec products:**

Expired materials may consist of food or non-food products (excluding those containing animal by-products which are incinerated).

a. **Procedure 4d: Food Products:**

These are passed through the shredder for destruction purposes. There are separate procedures for solid and liquid food, as described below.

Any outer packaging such as plastic or cardboard or wooden packaging that can easily be removed and recovered is first removed and placed in a container close by the shredder, prior to commencing the shredding of the material. This material will be taken to the sorting shed for separation and processing, as per recycling of materials (procedures 1 to

3). Any outer packaging that is contaminated with the product, especially food, and which is therefore not suitable for recovery, is shredded together with the material and is directed for landfilling.

The material is transported either in Wasteserv's own bins or packaged as these would have arrived at GSS facility.

▪ **Procedure 4d(i): Solid food:**

The material is passed through the shredder and in cases where the container of the product can be saved, it is removed before the shredding process commences or in some cases whilst the product is being shredded. A sieve is fitted underneath the shredder thus capturing the now shredded packaging in the sieve. When the recovery of the packaging is not possible, this is shredded with the product itself directly into a skip or bin, depending on the quantity requiring destruction. It is necessary at times to add some absorbent material such as non-recyclable packaging (that would otherwise be landfilled) to the process, in order to help the material be shredded and not attach to the shredder blades. This absorbent material will assist the shredding process and will help the shredded product detach from the blades; it also eliminates the build-up of material which would otherwise hinder the shredding process. Once the shredding exercise is finished the blades are cleaned by shredding dry material that would have otherwise been landfilled. All the resulting material is landfilled. A Waste Transfer Note (WTN) is used, as requested by Wasteserv, to dispose of the material in landfill. During the shredding process skips or bins are placed directly under the shredder so that material falls immediately inside the skips/bins, minimising the risk of material falling outside the skips/bins.

An alternative option to shredding is the destruction of food by opening each container and scooping out the product. This process has been done previously, upon request by the client, but is extremely time consuming and therefore costly due the intensive labour work. Water consumption is also high when opting for this process, since water is required to clean the packaging.

All recovered outer packaging is passed on for further processing and recycling (procedures 1 to 3). All records are kept as is practice at GSS with all incoming and outgoing weights being recorded.

Sources of such solid foods are supermarkets, customs, importers and food manufacturers.

▪ **Procedure 4d(ii): Liquid Food (and other non-hazardous packaged liquids):**

Examples include juices, nectars, drinks, wines, water and similar liquids, which are passed through the shredder for the destruction. These would generally be expired or off specification drink. The process starts with a sample bottle being requested from the client. This, together with a duly filled form giving details of generator, the type of liquid, the quantity and other information, including details of the facility where the destruction will be taking place, is delivered to the Water Services Corporation (WSC) for analyses and confirmation that the liquid can indeed be disposed of via indicated sewer and by a registered waste carrier. The instructions from the WSC will indicate the correct pH level required in order to be able to dispose of the liquid.

With information received from the WSC, it would then be possible to send a quote

to the client. Once the quotation is accepted, the material is transported to GSS, either by GSS drivers or authorised third parties. It is easy to recover the packaging of liquids, because the sieve fitted underneath the shredder will allow the liquid to fall in a leakproof skip or an IBC. Packaging such as glass, metal, tetrapack or plastic is captured after shredding and recovered. This material will be processed as per packaging waste (procedures 1, 2, 3 and 4i below).

The liquid part is neutralised to the correct pH level as per WSC's instructions by GSS's chemist; neutralisation occurs in mobile containers (IBCs or dedicated leak-proof skips, depending on the volume) close to the shredder in area 3. After testing the material with pH meter, (so far only acidic material has been neutralised) the amount of neutralising agent is calculated. The substance used for neutralisation is sodium hydroxide (NaOH), known as caustic soda. This process is done by a chemist, by simply dissolving, adding and mixing the material until the required pH is reached. If an alkaline solution needs to be neutralized, acid can be used instead (hydrochloric acid); however, to date no alkaline materials have been received by the facility for neutralization as most such materials (e.g. expired juices, wine, etc.) are acidic.

Prior to disposal, a representative from the WSC will test the liquid and give the all clear for disposal or ask for further treatment as the case may be. The liquid part is then vacuum pumped into a tanker. GSS does not own a vacuum tanker so must seek a sub contractor to do this job. The liquid material is disposed of at a sewer outlet indicated to the authorised waste carrier by the WSC. Discharge to sewer occurs on the same day as neutralisation. All records are kept as is practice at GSS with all incoming and outgoing weights being recorded.

Sources of such solid foods are supermarkets, customs, importers and food manufacturers.

This procedure may also be used for liquid non-hazardous non-food items, subject to agreement by the WSC.

▪ **Procedure 4d(iii): Animal by-products:**

Food that falls under the 'animal-by-products' category is directed to the Marsa Thermal Treatment Facility (MTTF) for incineration. This is typically taken directly to the MTTF from the waste generator, and is only accepted at GSS in exceptional circumstances, such as when the transporting vehicle breaks down during transport, and the bins need to be transferred onto another vehicle. In such cases the waste is only stored temporarily at GSS (typically for a couple of hours), and is not shredded.

b. Procedure 4e: Expired Non Food products, off spec products and components and Obsolete equipment – Non WEEE and Non Hazardous.

Destruction of products offer assurance to the producer that the product will not find itself on the market after it was discarded as unsuitable. Outer packaging is removed and directed for further processing as per material and sent for recycling. Prior to accepting the product for destruction the client is asked to send a list of the products, if these are of various types. Samples may also be requested in order to determine the best destruction solution – dismantling and shredding, shredding only and dismantling only, so as to ensure the maximum recovery of material. To destroy the product, this is passed through the shredder, and the shredded material falls directly into a jumbo bag. Material is

generally sent for recycling even if it is mixed. Many times with off spec and obsolete equipment it is still possible to recycle the shredded parts due to a high value material forming part of the product. These items may include car switches, panels and similar parts, defective spare parts, etc. Every effort is made to avoid landfilling the shredded materials which may be plastic, metals, aluminium, glass, ceramics, wood, textile, rubber, cardboard, paper, etc. or a mix of the various materials. Products that may require shredding include: metal parts from high security areas such as aircraft, obsolete gift scheme and promotional gifts, off spec parts such as switches, ex demo model products ranging from toys, to shoes, to garden furniture, luggage, etc, practically any product may require such initial treatment.

- **Procedure 4f: Confidential Documents and other printed material:**

Confidential documents and other material of a sensitive nature cannot be either directly landfilled or processed for recycling prior to having all personal and other sensitive data destroyed. The shredding process offers this possibility to the client, who can rest assured of meeting data protection obligations. The documents and other sensitive printed matter are passed through the shredder. The resulting shredded material falls inside a bin or skip, depending on the quantity being shredded. Generally the owner of the material witnesses the shredding process. The shredded material is then transferred to the baling area (area 8) where it is baled and sent for recycling. Outer cardboard boxes are removed prior to shredding and directed for baling and recycling, unless client requests their return for reuse.

Generators of this material are offices, financial institutions, schools, university, printers, banks, hospitals, and others.

- **Procedure 4g: Other Confidential Material:**

Material such as videos, hard disks and CDs are also destroyed by shredding in order to avoid any possible illegal use of the confidential information contained in the storage unit. Destroyed hard disks are recovered with the WEEE components (procedure 7G) and eventually sent for recycling.

- **Procedure 4h: Confiscated and Counterfeit product and other products requiring destruction as per client's requirements:**

All destruction processes ordered by customs are witnessed by Customs Officials.

a. **Food Items:**

As for solid or liquid food, described above in procedure 4d.

b. **Procedure 4h(i): WEEE:**

Sometimes GSS is requested to destroy WEEE. Shredding the entire product is at times not possible as otherwise practically nothing of the materials are recovered. Prior to commencement of work, a Method of Work is sent to MEPA for approval. All dismantled and parts removed are directed to storage as per components of WEEE (procedure 7G). Other materials such as plastics, outer packaging and metal pieces which are of a single material are processed according to material type, and certain materials such as plastics are shredded.

c. **Procedure 4h(ii): Shoes , bags and similar items and textile products:**

The outer packaging is removed and directed for further processing as described above (procedures 1 – 3). The product is shredded and the material landfilled. Although several attempts have been made to recover the material by exporting it for recycling at foreign facilities, these attempts failed, main reason being the size of the shredded material, however necessity of destroying the product renders it useless. The only means of recovery could be waste to energy recovery.

d. **Procedure 4h(iii): Cigarettes:**

The outer cardboard packaging is removed and processed as per packaging material, in this case baling (procedure 2). The closed cigarette packs are deposited in the shredder as they are completely packed. The shredded material falls directly in a skip. Material is landfilled. Generally volumes of 20 cubic metres and over are shredded in one operation since these are imported in container loads.

e. **Procedure 4h(iv): Other products such as products for personal hygiene, laundry products and other similar items:**

In these instances, products are generally shredded as these cannot be exported in their imported condition and must be destroyed prior to sending them for further treatment in a foreign facility. Products that would not be considered potentially hazardous would be shredded and material is landfilled. If the product is a thick liquid (e.g. shampoo, fabric conditioner), absorbent material is also inputted into the shredder to absorb liquid residues; this is then landfilled. Any material that can be recovered (e.g. plastic) will follow the same procedures as per that specific material.

f. **Procedure 4h(v): Hazardous counterfeit products:.**

Products that are counterfeit but which may have a hazardous substance, such as toners, batteries and similar items are partially destroyed as per customs requirements and then exported for treatment in a foreign facility. Electrical and electronic Equipment (EEE) and similar products are treated according to the WEEE process of dismantling and components are exported for recycling. The export process will be carried out as per hazardous Waste Export Regulations.

In case of medicines, these are treated as hazardous material. We have so far never dealt with counterfeit medicines, however this may be possible in the future. Such material will be exported without processing for incineration.

Prior to the destruction process a procedure is sent to MEPA for approval of the process. The Customs officials witness the whole process.

Certification of destruction is issued, following the completion of the operation and in the case of exported material, following the certification received from the foreign facility.

- **Procedure 4i: Glass:**

Glass requires the shredding process in order to reduce the volume. Glass arrives at GSS facility from various clients but mostly as packaging. The glass (generally bottles and jars) arrives at the facility in 1100 ltr bins. The glass is either:

- a. Stored, without processing, in the skips storage area (area 24); or
- b. Passed through the shredder for volume reduction and bagged. The hopper of the shredder is covered during shredding of glass for safety reasons.

The bags, bins or skips are stored for a short while in area 24 prior to export or transport to third parties.

Only clean glass is shredded; glass that has been used to store chemicals is washed by the client before being received by GSS, and the containers containing washings are collected by GSS and treated as hazardous waste.

- **Procedure 4j: Rubber / rubber mixed with other materials:**

This may consist of rubber tyres and other rubber products as well as other large bulky items that require shredding prior to transport to third parties for recycling or further processing. The shredding process is as per other materials. Material is either placed in skips, bagged or baled depending on the final destination of the material.

- **Procedure 4k: Contaminated packaging:**

This is typically limited to paint cans and drums contaminated with oil sludge residue. These items are usually quite dry and would only have small quantities of paint or oil sludge, therefore no significant emissions to air are expected. Shredded packaging is placed into jumbo bags.

A quantity of cardboard is shredded after such contaminated packaging is shredded, in order to clean the shredder blades. The shredded cardboard is also considered hazardous waste.

Packaging that has been used for solvents / aqueous hazardous waste is typically washed by the client and arrives at the facility clean. As a result it would not need shredding but can be processed in the same way as plastic (processes 1, 2 and 3).

PROCEDURE 5: DRYING

- **Procedure 5a: Sewage Sludge Drying By Pressing**

In recent years Wasteserv has prohibited the disposal of watery sludge at the landfill. On a weekly basis one of GSS' clients deposits sewage sludge at GSS in order for it to dry naturally, resulting in a material with a low percentage of water and therefore acceptable for disposal in the landfill. The sewage sludge consists of bottom residue from bowzers carrying sanitary waste; it is the heavier sand-like material settling at the bottom of the tank of the bowser after the tanker discharges the sewage into dedicated sewer points identified by the Water Services Corporation. This sludge-type material is then required to be emptied from the tanker, since it would be occupying part of the volume of the tanker and also because the heavier thicker material would block the sewage system if it were to be disposed in the sewers.

The sewage sludge is a non-hazardous material, since client has analysed the material on different occasions. These analyses were presented to Wasteserv who in turn has accepted the material for landfilling, as long as it is not watery.

The drying process is a natural one and without much mechanical intervention. The material is discharged at the front part of the sludge pit (area 25) where this will be pushed back and pressed with a mechanical shovel. Because the pit is built inclined to one side, the slope effect shall, by gravity, assist in the drainage of the water. The pit was built in this manner following consultations with the client. It was decided that a shallow low walled pit be built solely for this drying process, and no other material is deposited in this area. Once daily the sludge is pressed down with a mechanical shovel to enable the

water to be released from the sludge. The water will then flow out into the side channel and piping system and flow directly into the cesspit (area 5). The flooring is impermeable. The cesspit has been fully lined as requested by the Water Services Corporation when applying for the Drainage Permit. It has also been tested and certified to be leak proof by an independent engineering firm. The cesspit is emptied regularly by an authorised contractor. Water Services Corporation have taken samples and analysed this sewage in order to confirm that the liquid is suitable to be disposed off in the indicated sewers.

The drying area itself (area 25) is built right next to the boundary wall and close to the cesspit, and a good distance from the offices, the garages and the areas that are occupied throughout the working day. The pit itself is quite shallow and therefore the amount that can be deposited in it is very limited. Only two to three loads are permitted each week. Each load is equivalent to approximately two cubic metres, with an approximate density of 1.2 tonnes per cubic metre, when deposited in the pit. Because the tankers must offload directly in the pit, the walls are low in order to allow the tanker to tip inside the pit without splashing outside the designated area. The material rests on the impermeable ground until it is dry enough to be landfilled. Generally if the weather is good, the material is ready to be mechanically loaded in skips and transported to the landfill within 2-3 days, depending on weather conditions and humidity. The skip is accompanied to the landfill by a Waste Transfer Note (WTN) and the GSS service chit as a record that this material was deposited in the landfill and for invoicing purposes. All records are kept.

Although the material is from cesspits residue, the only odour that is emitted is at discharge stage. The material is not turned, but only pressed to assist the drying process. The facility suffers from odours and foul smells from the surrounding farms including a pig farm, stables and the spreading of manure in the agricultural areas. These odours together with those emitted occasionally from the landfill by far surpass the 20 minute odour period at discharge stage. This service is essential to Water Services Corporation and it is believed that the operation is being done in a practical as well as an efficient manner.

This process eliminates a minimum of 20% of water from the material, thus allowing for the sewage to be directed to sewers rather than increase the leachates in the landfill. It is believed that this technique is not only the best available but one that does not entail excessive costs, does not emit any particular odours, is a natural way of dewatering sludge and does not harm the environment.

The capacities of the areas associated with this process are as follows:

Area	Type of waste	Maximum storage capacity
5 (Cesspit)	Effluent from sewage sludge pressing and sanitary facilities on site	8 m ³
25 (sludge pit)	Sewage sludge	Sludge pit: 80 m ³ Skip for dried material: 6 m ³

- Procedure 5b: Drying of Other Waste

Certain material arrives at the facility quite wet and needs to be dried before it can be accepted at landfill. GSS intends to dry this material inside skips. A two-skip system will be used, with one skip being placed on top of the other; the skip at the top will have a perforated bottom to allow for drainage of liquid wastewater, while the skip at the bottom will be leakproof to ensure that wastewater does not escape. The skips will be sized according to the quantity of waste that needs to be dried.

Skips will be placed just beside the sludge pit (area 28) and sludges will be allowed to dry naturally, with occasional pressing with a mechanical shovel. The wastewater that drains to the bottom skip will be pumped to the cesspit (area 5) for eventual disposal. The dried material is removed from area 28 to an authorised facility as soon as possible.

This procedure will be limited to inert or non-hazardous waste that will not release significant offensive odours during drying.

PROCEDURE 6: WASHING OF SKIPS AND BINS

As part of the service and in order to keep the containers in a clean condition, skips and bins are power washed as frequently as necessary, in area 7. Containers are brought to the site where they are placed in the quarantine area (area 9) awaiting emptying. These are then power washed in an area dedicated solely for this purpose. The dirty water drains to the cesspit and solid parts are collected so as not to allow this material to move through the drainpipes. This solid part is disposed off with the mixed waste. No hazardous waste enters this area.

Clean bins are then checked for any damages and missing parts such as drain plugs, handles, locks and other essentials. If found to be in good condition, the bins are placed in the dedicated area for clean bins (area 24), from where these will move out again as part of the service. Those that require servicing are taken to the workshop where the bins are repaired and fitted with the necessary missing parts.

PROCESSING OF HAZARDOUS MATERIALS

Hazardous waste handled by the facility includes the following four main types, each of which is managed according to different operational procedures:

- 1. Waste Electronic and Electrical Equipment**
- 2. Clinical Waste**
- 3. Hazardous industrial waste**
- 4. Laboratory chemicals**

For each type of the above waste, all the necessary applications/documentations for the initial local transport for hazardous waste are submitted to MEPA. The Consignment permits are duly filled on behalf of the client, which applications for a permit will include all the relevant information. Following the approval, the best and safest transport option is decided and duly entered on the work schedule. A Consignment Note is then filled in to accompany the transport of the waste to Green Skip facility or to any other facility as approved by MEPA, depending on the material type. Generally GSS transports waste to its own facility however in several instances such as clinical waste, the GSS offers the transport only options and serves as an authorized waste carrier for the relative clients generating this type of waste.

PROCEDURE 7: WASTE ELECTRIC AND ELECTRONIC EQUIPMENT

Waste Electric and Electronic Equipment is handled in accordance with L.N.204 of 2014. According to these regulations, 'persons who intend to operate a WEEE collection, treatment and recovery scheme as required under these regulations, including the collection, sorting, storage,' treatment, export, recovery and recycling of WEEE on behalf of producers shall require and obtain a valid permit from the competent authority in terms of the Waste Management (Permit and Control) Regulations, 2001'. Green Skip Services Ltd. has sent all the information and procedures for this permit in accordance with these regulations and is duly authorized to dismantle WEEE. WEEE is separated into different components in order to recover as much material as possible; the different materials are exported for recycling according to material type.

- **Acceptance of WEEE:**

All 10 categories of WEEE are accepted at the facility. Waste is accepted from all duly registered contractors who are MEPA registered D2 waste carriers. Most of the waste however enters the facility with the company's own transport. GSS has active permits to transport WEEE waste, generally the 16 02 13*, 20 01 35*, 16 06 01* and others. All transport of WEEE will be accompanied by a copy of the CP and a CN. Once waste arrives at GSS facility it is deposited in the relative WEEE 'bin' (in area 11 / 12 in the hazardous shed) awaiting dismantling, after the load has been weighed.

All workers whose job entails the dismantling of WEEE, are trained in the dismantling of the different WEEE, with the exception of degassing (although this is not excluded in the future) . The drivers are also given ADR training (on the transport of dangerous goods) as is required by the ADR regulations. Recovered materials are either baled or granulated (procedure 2 / 3) or just placed in jumbo bags and sold locally or exported for recycling.

Preparation of documents and collection is done by GSS. GSS also accepts WEEE from other authorised waste carriers, as long as all documents are in order. GSS hopes that it shall become an important facility for WEEE acceptance in the near future once the recast Directive becomes mandatory.

WEEE is a hazardous waste and therefore requires permits for its transportation and acceptance at our facility. Only authorised and permitted vehicles are allowed to deliver waste at GSS facility. This waste usually arrives at GSS facility with GSS own transport. Most of the WEEE is removed from businesses, however small amounts are removed from skips placed at households.

LARGE HOUSEHOLD APPLIANCES Schedule 2

(Regulation 2(3) (a))

Indicative list of EEE which falls within the categories of Schedule 1

1. Large Household Appliances

-

- a. Large cooling appliances
- b. Refrigerators
- c. Freezers
- d. Other large appliances used for refrigeration, conservation and storage of food
- e. Washing machines
- f. Clothes dryers
- g. Dish washing machines
- h. Cookers
- i. Electric stoves
- j. Electric hot plates
- k. Microwaves
- l. Other large appliances used for cooking and other processing of food
- m. Electric heating appliances
- n. Electric radiators
- o. Other large appliances for heating rooms, beds, seating furniture

- p. Electric fans
- q. Air conditioner appliances
- r. Other fanning, exhaust ventilation and conditioning equipment

Although GSS does not categorise the WEEE according to the ten categories when it comes to dismantling, but more by the methodology according to the unit, work required, recoverable parts and their value and labour. However reporting of WEEE dismantling/recovery activity to MEPA is done according to the WEEE Directive and as per these categories.

- **Procedure 7a: General:**

- **Procedure 7b: Appliances containing CFCs and HFCs:**

- a. Large cooling appliances
- b. Refrigerators
- c. Freezers
- d. Electric heating appliances
 - l. Other large appliances used for cooking and other processing of food
 - m. Electric heating appliances
 - n. Electric radiators
 - o. Other large appliances for heating rooms, beds, seating furniture
 - q. Air conditioner appliances
 - r. Other fanning, exhaust ventilation and conditioning equipment

Appliances such as a, b, c and d, and l, m, n, o, q, r require degassing prior to acceptance at GSS facility. The engagement of a professional company that offers degassing of such appliances may be considered if there is such a demand. In this case the gas is bottled in cylinders and stored prior to being exported. There is no other dismantling that can be done since the whole unit would be contaminated with gas and therefore the whole unit is stored (D15) awaiting export as a whole unit. It may also be the case that no gas will be extracted but units are exported as they are accepted at GSS facility.

- **Procedure 7a: General:**

- e. Washing machines
- f. Clothes dryers
- g. Dish washing machines
- h. Cookers
- i. Electric stoves
- j. Electric hot plates
- k. Microwaves

And p. Electric fans.

The above appliances, e, f, g, h, l, j and p, have a high metal content with the possible exception of the clothes dryer and the fan, which may have a plastic outer part and the fan blades. This plastic part will be removed by unscrewing it from the rest of the body parts, and the plastic part is stored as per plastic parts and either baled or shredded as the case may be depending on the buyers' preference. All the other appliances require very simple dismantling, which is equivalent more to separation of metals. The cables and plugs are cut off and placed with the rest of the cables, the plugs and switches, if there are any, are placed with the plastics/metal, since the plugs and switches may have some metal parts and are therefore neither placed with the plastics nor with the metals, but kept separately. This material can also be recycled. All the other appliances have various types of metals and through unscrewing of the different parts it is possible to separate, metal (outer parts of the appliances), stainless steel, (the rotating drums of the washing machines, dryers and dishwashers), the cast iron (grids of cookers and sometimes the heating part of hotplates) the electronic cards if there is any in any of these appliances. Aluminium may also be present in small quantities. Microwaves, washing machines and ovens require the glass part, generally the rotating plate as well as the window part in the door to be removed. This glass is kept separate from the packaging glass since it is generally tempered glass. This glass is also recycled. Dismantling is quite straightforward since it is a question of unscrewing parts. Each material is kept separately due to value of material. Large pieces are placed in skips for metal recovery and sold to local scrap merchants

▪ **Procedure 7a: General:**

Large household appliances, such as cookers, microwave ovens, washing machines, dishwashers, vacuum cleaners, spin driers, dryers and similar items are dismantled (procedure 7G below), material separated and then bagged or contained. Metal parts are sent to local metal merchants, and the various components are separated and bagged. These will include electronic parts, batteries and cables. Dismantling of such appliances require time and patience since the appliance itself is manufactured from various materials.

The materials are stored until a required quantity is obtained and then exported or transported locally. Storage is carried out in the following areas:

- Metals: Metal box (area 22);
- Electronic components: Hazardous shed (area 11 and 12, which have a total storage capacity of 390 m³);
- Plastics: Area 18 / 21 (after baling where necessary).

No part of the appliance is landfilled as even the mixed and composite parts are retained and stored. GSS has exported its first container with components that require a more specialised recovery operation to a foreign authorised facility.

▪ **Procedure 7b: Appliances containing CFCs and HFCs:**

Appliances containing CFCs and HFCs (such as refrigerators, freezers, air conditioning units, and water heaters [which may contain CFCs / HFCs in their foam]) are also accepted, however no degassing is done on site. Presently only small parts, such as the motor and cables are removed and this only when it is certain that these are safe for removal. Removal and temporary storage is carried out in area 11 / 12.

The client is asked to depollute the appliance, so that all gas would have been removed by trained technicians and using the correct depollution apparatus; therefore in these cases the item arrives at the

facility gas free. The client is asked about the condition of the appliances prior to collection, in order to determine their final destination.

Any equipment that arrives at the facility without being depolluted is not currently degassed on site, but will be taken to a third-party authorised facility (typically exported) for degassing. No processing of such WEEE will take place on site.

In future, GSS may also consider installing degassing equipment as well as all the necessary requirements in order to leave only the carcass of the refrigerator.

Category 2 SMALL HOUSEHOLD APPLIANCES

- a. Vacuum cleaners
- b. Carpet sweepers
- c. Other appliances for cleaning
- d. Appliances used for sewing, knitting, weaving and other processing for textiles
- e. Irons and other appliances for ironing, mangling and other care of clothing
- f. Toasters
- g. Fryers
- h. Grinders, coffee machines and equipment for opening or sealing containers or packages
- i. Electric knives
- j. Appliances for hair cutting, hair drying, tooth brushing, shaving, massage and other body care appliances
- k. Clocks, watches and equipment for the purpose of measuring, indicating or registering time
- l. Scales

■ Procedure 7a: General:

Small household appliances, such as those listed in Category 2, are their description implies small appliances. There is a variety of materials that are at times quite complicated to separate from one another. As a general rule the easiest and quickest parts are removed. These may consist of outer shells and covers, such as the vacuum cleaners and grinders, clocks and coffee machines. The electronic parts, batteries and cables. Dismantling of such appliances require time and patience since the appliance itself is manufactured from various materials. Otherwise apart from the cables and wires which are removed, there is little dismantling that can be done and generally the remaining parts are shredded for volume reduction and exported as mixed materials where the materials are mechanically separated at specialised plants for WEEE recovery

The materials are stored until a required quantity is obtained and then exported or transported locally. Storage is carried out in the following areas:

- Metals: Metal box (area 22);
- Electronic components: Hazardous shed (area 11 and 12, which have a total storage capacity of 390 m³);
- Plastics: Area 18 / 21 (after baling where necessary).

No part of the appliance is landfilled as even the mixed and composite parts are retained and stored. GSS has exported its first container with components that require a more specialised recovery operation to a foreign authorised facility.

PROCEDURE 7G: GENERAL DISMANTLING METHODOLOGY:

Dimantling of electronics is done on a workbench in one of the hazardous waste sheds (area 12), where workers are trained to distinguish, remove and separate the various components from a product, such as batteries, cables, outer shell in plastic or metal, circuit boards, motors, chargers, etc. All the different parts are stored separately. Certain components require further treatment /separation, whereas others are immediately recyclable materials such as metals and plastics which are not contaminated by other materials. The hazardous parts and components, such as batteries and toners are removed from the WEEE and treated as hazardous material.. Some materials may have a positive financial value when sent for recycling, whereas others have a negative value and therefore even for economic reasons these are sold separately.

- All plastic will be separated, granulated or baled (procedure 2 / 3) and sold locally or exported to plastic recyclers.
- All metal parts will be sent for metal recycling, including cables. Export is also possible.
- Other hazardous materials will be accordingly exported following approval of an export notification from MEPA. These may also be sent to local authorized facilities.
- All other mixed materials shall be exported for materials recovery and certificates sent to GSS
- All weights pertaining to this section will be duly recorded
- All incoming and outgoing wastes are recorded and the necessary Permits the CP and CNs are sought and requested to third parties deposited waste at GSS facility.

WEEE is varied and dismantling can be quite complex but rewarding due to the value obtained when selling the various material obtained following dismantling. GSS has been successful in managing this procedure, training workers as to how to dismantle each type of equipment as indicated above, in order to achieve the best possible recovery and therefore the best prices for the materials and the least possible rates for the treatment of the hazardous fraction.

All recovered material is stored awaiting recycling / export. Storage occurs in the following areas:

- Plastic: Areas 18 and 21 (after baling where necessary);
- Metal: Area 22;
- Hazardous liquids: Area 15; and
- Other WEEE components: Area 11 / 12.

WEEE dismantling is beneficial for Malta since the value of the material is gained by local industry and in itself it is an encouragement for persons seeking to work in green jobs.

Category 3. IT AND TELECOMMUNICATIONS EQUIPMENT

- a. Centralised data processing
- b. Mainframes
- c. Minicomputers
- d. Printer units
- e. Personal computing:
 - i. Personal computers (CPU, mouse, screen and keyboard included)
 - ii. Laptop computers (CPU, mouse, screen and keyboard included)

- iii. Notebook computers
 - iv. Notepad computers
 - v. Printers
 - vi. Copying equipment
 - vii. Electrical and electronic typewriters
 - viii. Pocket and desk calculators
 - ix. And other products and equipment for the *collection*, storage, processing, presentation or communication of information by electronic means
- f. User terminals and systems
- g. Facsimile machine (FAX)
- h. Telex
- i. Telephones
- j. Pay telephones
- k. Cordless telephones
- l. Cellular telephones
- m. Answering systems
- n. And other product or equipment of transmitting sound, images or other information by telecommunications

Procedure 7 a General and Procedure 7f: Electronic Equipment are applied to the dismantling of IT and Telecommunications Equipment :

The IT and Telecommunications Equipment dismantling is quite straightforward with the exception of the screens,

Screens: required to be removed from the rest and kept separately.

Printers ; Toner cartridges are required to be removed prior to starting any operation. These are recycled separately.

Batteries: Batteries are removed from cordless phones, answering phones, laptops and cellular phones and other equipment that might have a battery incorporated in it. Batteries are separated according to type and kept apart.

Since many of these items require difficult and tedious handling in order to dismantle, only the quickly and readily removable parts are removed, and this will include any wires or cables and the circuit board.

4 CONSUMER EQUIPMENT AND PHOTOVOLTAIC PANELS

- a. Radio sets
- b. Television sets
- c. Video cameras
- d. Video recorders
- e. Hi-fi recorders
- f. Audio amplifiers
- g. Musical instruments

- h. And other products or equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound and image than by telecommunications
- i. Photovoltaic panels

Procedure 7d and Procedure 7 a are applied

For equipment – b, c and d, the screens are removed and kept separately. In the case of televisions the CRT if the TV has a CRT , it is handled gently to avoid any breakages. These are placed and secured in preparation for treatment. They are well packaged to avoid any possible breakages. Batteries are removed and kept separately. Otherwise only the readily and easily removed parts are taken away, these may include the outer shells and the IC boards and the wires or cables. The remaining parts of the equipment are stored.

The photovoltaic panels are opened and the various layers are removed and separated. These will be exported as such as they will undergo a treatment at a PV treatment facility

5 LIGHTING EQUIPMENT

- a. Luminaires for fluorescent lamps with the exception of luminaires in households
- b. Straight fluorescent lamps
- c. Compact fluorescent lamps
- d. High intensity discharge lamps, including pressure sodium lamps and metal halide lamps
- e. Low pressure sodium lamps
- f. Other lighting or equipment for the purpose of spreading or controlling light with the exception of filament bulbs

▪ Procedure 7c: Fluorescent tubes and bulbs:

Neon tubes and bulbs are accepted and are stored in area 11 / 12 in appropriately-sized boxes (shown below) to minimise the risk of breakage. To date these have been forwarded to the Wasteserv Storage .Centre.



Since the setting up of the two Schemes, Wasteserv is no longer accepting these items. GSS was considering an enclosed machine that crushes the tubes to reduce their volume; this would be installed in area 11, which is furthest away from sensitive receptors. Tubes will be fed into an appropriately-sized chute equipped with a self-closing trap door to avoid release of mercury vapour. The manufacturer's operating instructions will be followed closely during operation. This method is at present being shelved, mostly due to the fact that there is already a similar piece of equipment in Malta and due to the quantities being generated in Malta, it is felt that there is no room for competition. This project shall at present remain on paper with the possibility of starting this operation only if there is a drastic change in the local scenario. Therefore taking everything into consideration, it is planned that the neon tubes etc, will be either forwarded to third parties for crushing, or exported as whole items. The packaging will follow all the requirements of packaging according to ADR regulations.

The crusher will include an activated carbon filter to abate mercury vapours; a motorised fan continuously draws all vapour and dust through the filter media. Filter saturation is also monitored by the system, and filters will be changed as needed to ensure optimal performance and safety. The equipment has been designed to keep mercury vapours below $5 \mu\text{g}/\text{m}^3$ at all times; however, actual emissions may be lower than this level since the quantity of neon tubes crushed at a time will be small and lower than the equipment capacity. Additionally, the crusher will not be in continuous use. Air emissions monitoring will be carried out during operation according to the frequency required by MEPA.

Crushing occurs within a double chamber, which allows the unit to remain below 65 dB of noise during crushing.

The crushed glass will be transferred to an authorised facility (local or abroad) as hazardous waste.

Specification sheets for the equipment being considered are included below; the equipment selected is the "RDA" model, since this offers the best performance in terms of mercury emissions. Further information is available from http://www.dextrite.com/our%20models/index_models.html.



UNDER SPECIAL INSPECTION



SPECIFICATIONS

ENSURING LAMP
DISPOSAL SAFETY

BASIC MACHINE SPECIFICATIONS:

	RDA	LC-ECO PLUS	LC-II
Width, Depth, Height in inch	54W, 36D, 100H	24*24dia., 12H	24*24dia., 12H
Width, Depth, Height in meter	1.37, 0.91, 2.54	0.61*0.61d., 0.30H	0.61*0.61d., 0.30H
Shipp. wght: pound; (kilogram)	600 lb; (272 kg)	75 lb; (34 kg)	75 lb; (34 kg)
Power: volt, ampere, hertz	115V, 15A, 50/60hz	115V, 4A, 50/60hz	115V, 4A, 50/60hz
Normal container	55 gallon drum	55 gallon drum	55 gallon drum
Filter system	DHF-4DC	EF-24	EF-24
Filter capacity, 4 foot tubes	3600	2400	2400
Hg emission, mg/cub.meter*	0.005 or less	0.02 average	0.02 average
Flail motor horse power (hp)	1/2	1/6	1/6
Fan horse power (hp)	1/2	1/130	1/130

LAMP TYPES HANDLED:

Fluoresc. tubes, 8 ft or less	Yes	Yes (1)	Yes (1)
U and circular tubes 15 inches	Yes		
Bulbs to 7.5" diameter	Yes		
Circular tubes to 15" diameter	Yes		

ESTIMATES AND CAPACITIES:

Cap., 4 ft tubes, normal container	900	800	800
Feed capacity, 4 ft tubes/minute	25	25	25
Flail life, number of 4 ft tubes	60000	40000	40000

(*) OSHA threshold limit value for 8 hours of exposure (TLV) is 0.050 milligram (mg) per cubic meter.

(**) Includes labor, drum, filter, Poly-Sleeve and routine maintenance costs.

(1) Optional 8 foot extension feed tube recommended for 8 foot lamps.

(2) Optional 8 foot extension feed tube and adapter recommended for 8 foot lamps.

The Dextrite crushers are warranted by the company for one (1) year from the date of original purchase against defects in workmanship and/or materials under normal usage. This warranty does not cover damage resulting from wear and tear or misuse and negligent use of the crusher. Any tampering with the electrical or the electronic parts of the machine will void the warranty.

Our company shall have no liability whatsoever at any time for any personal injury or property damages or for any special, indirect, or consequential damages of any kind.

This warranty is strictly limited to its terms and is in lieu of any and all other understandings, warranties and conditions, written or oral, whether expressed or implied.

N.B. The highlighted parts and details referring to the crushing equipment shall remain on hold for the time being

6 ELECTRICAL AND ELECTRONIC TOOLS (WITH THE EXCEPTION OF LARGE-SCALE STATIONARY INDUSTRIAL TOOLS)

- a. Drills
- b. Saws
- c. Sewing machines
- d. Equipment for turning, milling, sanding, grinding, sawing, cutting, shearing, drilling, making holes, punching, folding, bending or similar processing of wood, metal and other materials
- e. Tools for riveting, nailing or screwing or removing rivets, nails, screws or similar uses
- f. Tools for welding, soldering or similar use
- g. Equipment for spraying, spreading, dispersing or other treatment of liquid or gaseous substances by other means
- h. Tools for moving or other gardening activities

Most of the equipment in Category six falls requires very little dismantling since the main components of the equipment, once the wires and cables are removed, are plastic and metal. Several of the various models falling in this category are not even possible to dismantle since they would be completely sealed and are therefore exported for recycling as an entire piece of equipment. With the larger tools it may be possible to remove certain parts such as those that incorporate removable blades as in the case of saws. The idea of dismantling is meant to extract valuable material, in order to receive an economic gain when the materials are sold. Apart from the metal parts (and again metal prices fluctuate immensely) dismantling the equipment for little or no gain is not economically viable. Procedure 7a is followed whenever this is possible without incurring too much time wastage to remove fine screws.

7. TOYS, LEISURE AND SPORTS EQUIPMENT

- a. Electric trains or car racing sets
- b. Hand-held video game consoles
- c. Video games
- d. Computers for biking, diving, running, rowing, etc
- e. Sports equipment with electric or electronic equipment
- f. Coin slot machines

With the exception of e and f which are the larger items in this category, generally the equipment is left as is, after the removal of batteries. It may be possible however to dismantle parts of the large sport equipment and this is done only whenever this is possible. Slot machines are dismantled taking care in the removal of the screen and any other glass parts. The materials are separated accordingly and disposed of according to the relative material. Procedures 7a, is followed.

8 MEDICAL DEVICES (WITH THE EXCEPTION OF ALL IMPLANTED AND INFECTED RODUCTS)

- a. Radiotherapy equipment

- b. Cardiology equipment
- c. Dialysis equipment
- d. Pulmonary ventilators
- e. Nuclear medicine equipment
- f. Laboratory equipment for in vitro diagnosis
- g. Analysers
- h. Freezers
- i. Fertilization tests
- j. Other appliances for detecting, preventing, monitoring, treating, alleviating illness, injury or disability

It is not envisaged that any of the above equipment will be dismantled, due to its either small size or very large dimensions. The smaller equipment is exported as is, whilst the larger ones are reduced by means of separating parts of it to make it more suitable to handle whilst packing it in a container. Certificates of no radioactive equipment will be requested from the client since no radioactive material will be accepted on site at GSS facility. Material will follow the Procedure 7a, it is at any time applicable

9 MONITORING AND CONTROL INSTRUMENTS

- a. Smoke detector
- b. Heating regulators
- c. Thermostats
- d. Measuring, weighing or adjusting appliances for household or as a laboratory equipment

Items in this category might require special handling and export requirements. Some smoke detectors (a) have ***'an amount of elemental americium-241 is small enough to be exempt from the regulations applied to larger sources. It includes about 37 kBq or 1 µCi of radioactive element [americium-241](#) (²⁴¹Am), corresponding to about 0.3 µg of the isotope.*** ^{[19][20]} ***This provides sufficient ion current to detect smoke, while producing a very low level of radiation outside the device. (source – Wikipedia) . In such cases the authorisation and guidance of the Radiation Unit is sought. Other smoke detectors are not the ionisation type and are not radioactive. Several of the items in Category 9 would contain batteries either to work or as backup. These batteries are removed and disposed of accordingly. All other items in this category are dismantled only in case these are large enough to make this. commercially viable, otherwise these are exported as they are. Procedure 7a is generally applied.***

10. AUTOMATIC DISPENSERS

- a. Automatic dispensers for hot drinks
- b. Automatic dispensers for hot or cold bottles or cans
- c. Automatic dispensers for solid products
- d. Automatic dispensers for money
- e. All appliances which deliver automatically all kinds of products

Automatic hot drinks dispensers are bulky and will require dismantling prior to disposal (a) . These may vary in dimensions from the smaller versions available in offices or waiting areas to the large

commercial types generally placed in areas that cater for a larger number of persons, such as hospitals etc. The larger models would require the outer casing removed and treated according to material type. Internally the different sections that hold the various products are separated by material type. All cables are removed. Other parts are similarly dismantled and treated according to material type. The smaller versions undergo the same dismantling process.

The dispensers (b) for hot drinks are treated as per (a) above, whilst those dispensing the cold drinks would require degassing prior to being dismantled, should this be possible without breaking the foam packing of the unit itself. Otherwise the same procedure will be followed.

With regards to dispensers of c, d and e , dismantling should be quite straightforward. The removal of cables, the outer casing and the various slots and shelving are separated according to material type. Some units would have more metal (d) than the other dispensers. Procedure a will be followed , plus Procedure 7 b where applicable .

Other WEEE: Consumer Equipment, Toys and Leisure Equipment and Small Household Appliances

▪ Procedure 7d: Monitors and CRT TVs:

Most of the waste products require straightforward and simple, but time consuming disassembly with the exception of monitors and TVs. In these cases just the cables, outer shell and any quickly removable parts are taken out, leaving the tubes and other glass parts intact. These are placed in boxes and on pallets in manner in order to avoid any breakages. These are stored in area 11 / 12 pending export. The separated materials such as cables, yokes, boards, cards, etc. are bagged separately according to instructions previously forwarded by the buyer and stored in area 11 / 12. Some recovered materials have more value than others and therefore the separation is important. Each bag is labelled accordingly and stored awaiting export. The plastics and metal parts (stored in areas 18 / 21 and 22 respectively) are generally sold locally to authorised brokers and only those materials of a certain value are exported.

Great care is taken in the handling of CRTs . In case of a breakage the CRT and all broken pieces are placed in a closed drum and treated as hazardous material.

▪ Procedure 7e: Small WEEE:

Small WEEE is also accepted at the facility. Generally removed from skips, these include irons, radios, small kitchen appliances such as mixers, juicers, toasters , kettles, fans and similar items. Each unit is dismantled and parts removed are separated by type, material bagged, or shredded or granulated or baled accordingly (procedures 2, 3 and 4) and sent for recycling. All cables are recycled.

Quantities recovered from skips are fairly small as people have as yet not started to realise that these products fall under the WEEE category and generally mix with household waste, resulting in a loss of material and not even recovered in the collection system. Such items apart from examples already mentioned include toys, hand tools, TVs, etc. This equipment can also be dismantled, and separated material is bagged or contained pending export. Recovery of materials from certain types of WEEE is very labour intensive and the value of the recovered material is small. GSS has reached an agreement with an authorised foreign facility to start exporting this material directly, since the recovery is done mechanically by the receiving facility, resulting in a better quality recovered material.

▪ Procedure 7f: Electronic Equipment:

Electronic Equipment is likewise dismantled. Monitors that are of the older type as treated similarly to televisions (procedure 7d) with special care being given to the CRTs, whereas the flat screen monitors are dismantled further with the screen also being left intact. The tower of the computer is the more complex with the various parts being removed and separated. These are then bagged and stored awaiting export.

Cables and metal parts are many a time sold to local metal merchants, the latter more often than the cables. The various components are bagged and stored awaiting recovery or sale. A quantity of material is required before a sale is possible since a container full is required to effect an export.

The outer plastic casing of monitors is baled (procedure 2). Items in this category include computers, telephony equipment, including mobile phones, printers, fax machines, photocopiers of various sizes and similar equipment. Equipment is carefully dismantled and resulting materials contained.

With regards to printers and equipment that uses toners, these are separated and treated differently. Toners are presently being delivered separately to Wasteserv. Other separately collected toners are also sent to Wasteserv. These toners are always empty. Whenever the toners are full these are exported as such without any tampering, due to possible escape of the material.

PROCEDURE 7G: GENERAL DISMANTLING METHODOLOGY:

Dimantling of electronics is done on a workbench in one of the hazardous waste sheds (area 12), where workers are trained to distinguish, remove and separate the various components from a product, such as batteries, cables, outer shell in plastic or metal, circuit boards, motors, chargers, etc. All the different parts are stored separately. Certain components require further treatment /separation, whereas others are immediately recyclable materials such as metals and plastics which are not contaminated by other materials. The hazardous parts and components, such as batteries and toners are removed from the WEEE and treated as hazardous material. CRTs are also considered as hazardous components. Some materials may have a positive financial value when sent for recycling, whereas others have a negative value and therefore even for economic reasons these are sold separately.

- All plastic will be separated, granulated or baled (procedure 2 / 3) and sold locally or exported to plastic recyclers.
- All metal parts will be sent for metal recycling, including cables. Export is also possible.
- Other hazardous materials will be accordingly exported following approval of an export notification from MEPA. These may also be sent to local authorized facilities.
- All other mixed materials shall be exported for materials recovery and certificates sent to GSS
- All weights pertaining to this section will be duly recorded
- All incoming and outgoing wastes are recorded and the necessary Permits the CP and CNs are sought and requested to third parties deposited waste at GSS facility.

WEEE is varied and dismantling can be quite complex but rewarding due to the value obtained when selling the various material obtained following dismantling. GSS has been successful in managing this procedure, training workers as to how to dismantle each type of equipment as indicated above, in order to achieve the best possible recovery and therefore the best prices for the materials and the least possible rates for the treatment of the hazardous fraction.

All recovered material is stored awaiting recycling / export. Storage occurs in the following areas:

- Plastic: Areas 18 and 21 (after baling where necessary);
- Metal: Area 22;

- Hazardous liquids: Area 15; and
- Other WEEE components: Area 11 / 12.

WEEE dismantling is beneficial for Malta since the value of the material is gained by local industry and in itself it is an encouragement for persons seeking to work in green jobs.

- **Procedure 7h: Batteries**

Batteries are only separated by type and not treated on site. After segregation, they are stored on site (area 11 / 12) pending transfer to authorised facilities (including export).

- **Procedure 7i: Other WEEE types not processed at the facility**

Equipment contaminated by PCBs or asbestos may be accepted by the facility, however, no processing occurs on site. Such WEEE is either exported directly or sent to third parties for export. Double-bagging or “overpacking” will be implemented for asbestos-containing waste.

PROCEDURE 8: CLINICAL WASTE

- **Procedure 8a: Type A and B waste**

Clients inform GSS administration the nature of the clinical waste generated in order to determine what documentation is required and the EWC codes to be used when filling in the Consignment Permits (CP) and eventually the Consignment Notes (CN) on behalf of the client, prior to its collection. The clients are advised about containment and at source separation of both type A and B waste. These small yellow containers, with a capacity of 1ltr up to 60 ltrs are subsequently collected in yellow 1100 litre containers duly marked as Biohazard Waste and presently provided by Wasteserv. These are transported directly to the Marsa Thermal Treatment Facility accompanied by all the relative tracking documents. These will include the CP and the CN as well as GSS own service ticket to show that the service was indeed effected. As soon as the vehicle arrives at the MTTF, it is weighed ‘IN’ and weighed ‘OUT’ again. The bins are off loaded and the vehicle can leave. A Waste Transfer Note (WTN), Wasteserv’s own service chit is also duly filled.

Drivers are trained to notice anything irregular in the load, and if this will pose any danger to themselves or their assistants. Should there be any abnormalities, they will immediately report to the office and directions are given whether to continue with the job or abort the collection. All drivers are ADR trained (transport of dangerous goods) and training was also given in the methodology of clinical waste collection, its safe handling and the use of personal protective clothing.

No clinical waste is taken to GSS since the Marsa Thermal Treatment Facility is well equipped to handle and store this material even when the incinerator is undergoing maintenance work. GSS has no intention of storing clinical waste on site, and this is typically taken directly to the MTTF from the waste generator. Clinical waste is only accepted at GSS in exceptional circumstances, such as when the transporting vehicle breaks down during transport, and the bins need to be transferred onto another vehicle. In such cases the waste is only stored temporarily at GSS (typically for a couple of hours). Should GSS require regular storage of clinical waste in future, GSS shall present the required methodology to MEPA and apply for the necessary permit.

- **Procedure 8b: Cytotoxic Waste**

Cytotoxic Waste from hospitals is exported in the same packaging as it arrives at GSS. This palletted box contained the special cyto bins, colour coded and marked CYTO WASTE are placed inside the UN approved box. GSS will store the boxes only until the next shipment is scheduled. No repackaging at all takes place, just addition of labelling takes place. This material is certified as non radioactive by the hospital itself and a certificate is presented with each load. The generators are the oncology hospital and oncology wards in private hospitals. The same type of documentation is required as per hazardous waste, however the EWC code is different. The waste is shipped to a foreign facility for incineration with energy recovery.

Cytotoxic waste material is also generated by very few pharmaceutical manufacturing companies, both in solid and liquid form. This material is production waste, unlike the cyto waste generated by the hospitals, which is generally tubes and needles used in the administration of intravenous treatment to cancer patients. The production waste can only be accepted at GSS facility as well, packed and labelled and with the document and Mepa permits duly filled. The generator also sends prior to collection the packing list of each pallet. There is never any repackaging or bulking of this waste, only labelling. The material is only accepted once the foreign facility sends us the acceptance in writing, as per hazardous waste acceptance procedures. The foreign facility in some cases and with certain materials also sends us the type and volume of packaging that the material needs to be packaged in, as a condition for accepting the material for treatment. This material is also non radioactive. But like hazardous materials all materials are checked by the site manager upon entry for radioactivity level with a Geiger instrument.

Storage and labelling of such waste occurs in area 14 (if solid) or in area 15 (if liquid) within the hazardous waste shed. Labelling / strapping / shrinkwrapping may be also done immediately in front of the same areas.

- Procedure 8c: X RAYS

Very rarely a client, generally from clinics and hospitals require to dispose of old X Rays. These are not considered as hazardous. Treatment is effected at specialised facilities abroad. These are bagged and labelled in area 9 prior to shipment.

PROCEDURE 9: RADIOACTIVE MATERIAL

Radioactive material (spent) has so far never been accepted at GSS facility, however there have been several requests for spent smoke detectors and alarms' disposal, and this is the only radioactive material being considered at the facility.

Both photoelectric and ionization smoke alarms contain plastic and electronic circuit boards and in some cases batteries (alkaline or lithium). Ionization technology also includes a chamber containing radioactive material incorporated into a gold matrix. Because of the long half-life of americium-241, the amount of radioactive material in the smoke alarm at the end of its certified useful life will be about the same as when it was bought. These units and other falling under this category but with similar specifications are successfully recycled in specialised facilities or taken back by the manufacturers. Several drivers at GSS are already trained in ADR class 7, Radioactive.

The material is first checked for radioactivity using a Geiger monitor. Smoke detectors are classified as class 7 and therefore emit very low levels of radiation. Class 7 is a class different from the other hazardous waste classes and it is understood that there are various provisions that must be taken in order

to handle such material. Many items although categorized as radioactive are quite harmless, but still require to follow the radioactive disposal and transport procedures.

Smoke detectors are packaged individually in thick cardboard packaging and placed in a large cardboard box. This procedure is carried out in area 13 in the hazardous waste shed. The detectors are then exported for recycling. As the detectors are classified as class 7 there are no special precautions (other than packaging as described) that need to be taken during transportation. The receiving company dismantles the detectors and the ionisation source is disposed of annually at an approved facility.

GSS has already been in touch with MEPA (Mr Alfred Sharples) to confirm transportation requirements. Transportation will follow ADR requirements. Should there be a need for such a waste to enter the facility, MEPA and the Radiation Protection Board will be contacted and details will be provided as required.

Should there be a pressing requirement for handling and exporting of other radioactive material GSS shall also submit a methodology for MEPA's consideration.

PROCEDURE 10: HAZARDOUS INDUSTRIAL WASTE

Hazardous waste is generated by most of the local industries, although there is still the perception that some material although hazardous, is not recognized as such by the generator. Many generators are in fact quite surprised when informed that what they are actually generating is indeed a hazardous material and therefore require specialised treatment and disposal. Such materials may be solid, liquid or gas. The type of hazardous waste generated will depend on the product or activity of the manufacturing or service industry. The waste material may have different contaminants, such as solvents, oils and chemicals and in both liquid and solid form.

- Procedure 10a: Initial Enquiries

Upon request for hazardous waste management services, the administration asks the client information about the waste type - solid, liquid, sludge, asks also about its containment and quantity in stock and quantity generated periodically, asks if any analyses are available and asks also how the waste material was generated, which process generated this material and what materials may be present in the waste material. All this information is required by the foreign facility to assess whether it can or otherwise accept the material and if in the affirmative whether it will be directed for recovery or incineration with energy recovery. A list of the chemicals or ingredients is requested from the client and Material Safety Data Sheets of certain materials contained in the waste, may also be required to be presented by the client. No waste is accepted by the foreign facility, unless a representative sample has been analysed by the foreign facility laboratory. The sample shall be accompanied by the information above requested. If the client produces an analyses report, this is also sent to the foreign facility together with the sample, for verification. The foreign facility may still ask for a sample even though a report was previously sent, but there was a long interval either in shipments of the material or possible production changes. The foreign facility will finally send its acceptance, information about the preferred packaging and its capacity and labelling information. A Dangerous Goods Safety Advisor (DGSA) will advise on transport, labelling and packaging of the material. GSS has its own DGSA.

- Procedure 10b: Transportation to GSS facility

Upon confirmation by the client to proceed with the transport and disposal of the material, the DGSA contacts the client for information about the state of the packaging and its type, the quantity and if the

client wishes to proceed with the disposal of all or part of the consignment. Generally the client is visited in order to check about the load, accessibility and loading options available at the client and other instructions. Following the relevant application to MEPA to transport the waste from the client's site to Green Skip facility, an appointment is set with the client for collection to take place. The driver will visually inspect all the drums/pallets for leakages, safe transportation and labelling. If there are leakages he will contact the office of GSS and ask for instructions.

In cases of very small leakages the spillguard bunding is used in order to avoid any spillages during transport but it will be possible to transport. The bunding can hold up to 4 drums or 1 IBC. In case of larger leakages, there will be the need to 'overpack', making it safe for both transport and the safety of the driver. Since no hazardous waste treatment plant exists in Malta, the only possibility for hazardous waste treatment involves its export. Only very limited amounts and types of industrial wastes are accepted at the Marsa Thermal Treatment Facility. Adequate storage facilities are provided on site in order to professionally repack, bulk and store hazardous waste in an appropriate and safe manner.

- Procedure 10c: Storage of Hazardous Waste at GSS

Interim storage of hazardous waste occurs in the hazardous waste shed, which has been labelled accordingly. The hazardous waste shed consists of the following areas for storage of hazardous industrial waste:

Area number	Type of waste stored	Maximum storage capacity
15	Solvents and liquids	410 m ³
14	Solids, e.g. sludges	310 m ³
13	Other hazardous waste (including any material deemed to be incompatible with waste stored in areas 14 and 15 following an ADR assessment)	300 m ³

Area 16 is designated for repackaging of hazardous industrial waste. As mentioned in procedure 7, WEEE is stored and processed in areas 11 and 12.

The entire hazardous waste shed has been concreted and surfaces are rendered impermeable. They are also roofed but with a small gap in the middle of the roof, which gap is 'hooded' in order to allow ventilation. A leakproof channel (area 17) immediately at the entrance to the storage area will contain any spillage that might occur. This channel is covered so that in the event of rain, no water can enter. The channel runs through the whole length at the front of the hazardous waste storage areas and incorporates two large bunds of 1.5 cubic metres each, excluding the channel volume, and are also leakproof. Absorbent material is available inside the shed in case of any spillages. Storage is only interim, otherwise waste is prepared and shipped within a short period of its arrival at GSS facility. In the highly unlikely event that a leak occurs, a large amount of absorbent material is available in immediate vicinity. The storage areas are checked daily by the supervisor and site manager. All the drums, pallets and IBCs are clearly labelled for immediate identification of the material as well as ownership and the CN number as a reference to MSDSs and other important information. All drums and packaging are inspected upon entry at the GSS facility. Pallets or individual packages are weighed and verified against entries in the CN. The site manager will enter the weight, date, time and any other missing details in the CN and sign it. The CN shall then be taken to the operations office for data entry. Labels are checked and corrected if necessary prior to storage. The responsible person will then decide if bulking or repackaging is required or if the waste should be stored immediately without any bulking or repackaging. The client may opt for storage

only for a period of time. Generally this is due to the generator's indecision regarding the disposal of the material in question or for budgetary reasons. Any material resulting from a spillage is removed from the channel and bund and treated as hazardous material. In the event of treatment facilities being available locally, GSS shall also make use of these facilities.

The client would then be able choose between utilizing the existing local facilities or exporting hazardous material. All the documentation involved in obtaining a permit to export any type of hazardous waste is dealt with in a very conscientious manner. The clients are offered a 'one stop shop'/ all inclusive offer and all the required insurances, bank guarantees and shipping are dealt with by Green Skip Services Ltd. Green Skip Services have to date exported a large number of containers successfully and without any problems. Transport of the material to GSS is done only once there is acceptance by the foreign facility, approval by the client and by GSS, thus ensuring that the material is only kept at the GSS facility for a very brief period. The required documents accompany the waste material. Once at GSS site, the site manager will check the material, the quantity of pallets and drums or bags and proceeds to weighing the load. The weight of the load is then entered on the CN. Labels giving details of the date, generator, EWC code and material type are placed on the containers.

- Procedure 10d: Repackaging and Bulking of Hazardous Waste:

Clients are informed what type of packaging is required for their particular type of waste. All packaging must be UN approved in order to be suitable and acceptable for export without having to repackage unless the container is damaged prior to export. Repackaging involves the removal of the material from its existing containment and repackaging it in another UN approved container. Prior to this operation the MSDs are studied especially if the material is one which had never previously been accepted. If the material is being exported the foreign company gives its own instructions as to container preference with regards to capacity and container type. The packaging can vary from small pails to 1000 ltr IBCs and jumbo bags of the same volume. Based on the information obtained from the Material Safety Data Sheet, the instructions given by the foreign facility and the Dangerous Goods Safety Advisor, the repackaging can take place.

a. Procedure 10d(i): Liquid Waste

Liquid waste can be water contaminated with oils, solvents and other chemicals, solvents, paints, varnishes, inks, oils, and other chemicals, expired chemicals and materials. So as to avoid the need for repackaging, the client is given the appropriate container, which is kept in stock at GSS, and given instructions on how to package the material. Sometimes due to instructions from the facility or wastes that arrives from clients whom we had not advised about packaging, or the nature of the product, repackaging must take place. However, it is to be stressed that repackaging is avoided where possible to prevent double handling of waste.

Repackaging takes place generally because:

- The containment is damaged (e.g. dented, rusty);
- The container is inadequate (e.g. according to ADR requirements);
- The container is not according to instructions of the accepting treatment facility;
- Container not completely filled and in this case, bulking takes place (e.g. the contents of a half-full IBC are transferred to another half-full IBC);
- Space saving (e.g. transfer of the contents of various drums to a single IBC), whenever this is possible without creating any other possible danger.

Liquid wastes are only mixed if they are from a single waste generator and of the same EWC code, to ensure there is no mixing of incompatible waste. Wastes presenting unacceptable risks to the environment or to workers (e.g. waste containing mercury) are not repackaged on site; risks are assessed by evaluating the Safety Data Sheet for the material.

The liquid is transferred by directly connecting pipes that create a tight seal so as to avoid any possible emissions. Transfer occurs by gravity; no pumps / compressors are involved. Once empty the damaged container is cleaned (if that is possible) and resulting wastewater treated as hazardous waste; when cleaning is possible and the container is still in good condition, it is stored for reuse. Damaged packaging that cannot be cleaned or reused is shredded or cut or baled and treated as hazardous waste.

A drum handling equipment, which is an extra attachment to the forklifter, is used to lift and rotate the drum during repackaging operations. A plastic cover will ensure that there will be no spillages and odours. This operation is quite rare nowadays, since clients are handed the right type of containment in order to avoid repackaging.

The now newly packaged waste is labelled, which label will include information indicating the name of the generator, the EWC code, the date of entry, the weight and the material. This label will be removed and replaced with a more detailed label prior to export. A label with the class number is also placed on the packaging.

Many times instead of repackaging an 'overpack' is used. This type of containment is large enough to allow the damaged container to be placed inside another container without any difficulty. An overpack is used when the existing container is either too fragile, the material too dangerous to handle, or so required by ADR. Overpack is a term used when there is double containment with a space in between, generally filled with absorbent / cushioning material.

A supervisor/chemist is present during the repackaging process which takes place inside the hazardous shed (area 16) but in well ventilated area. Only trained workers are allowed to handle, repack and move the hazardous material. A forklift is available at all times in order to move or lift the drums, bags, boxes, IBCs and pallets. The containers are placed on pallets, with the quantity depending on the volume of the drum, bag, box etc. These are shrinkwrapped and strapped to the pallet and placed in the storage area awaiting export. The Dangerous Goods Safety Advisor (DGSA) will advise on the preparation of the material for export.

b. Procedure 10d(ii): Solid Waste

Solid waste can consist of oil sludges, sludge from water treatment, contaminated packaging, oily rags, contaminated personal protective clothing, inks, pharmaceutical waste from production, expired products, off spec products of a hazardous nature, production sludges, paints, etc. Some solid non-hazardous wastes may also undergo this procedure, especially if they are intended for transport to facilities other than the Ghallis non-hazardous landfill.

As per liquid waste, the client is advised as to packaging type required; repackaging is only carried out under the conditions described in procedure 10d(i) and in the covered area 16. As for liquid waste, repackaging is avoided where possible to prevent double handling of waste.

The same procedures for repackaging of liquid waste apply to solid waste with a few exceptions. The procedures for specific types of solid waste are described below:

- Non dripping and quite dry oily rags and contaminated packaging are baled and shrinkwrapped, or placed in jumbo bags. Maximising weight to volume ratio is a priority in order to have a load with weight superior to 16 tonnes.
- Dripping rags are placed in drums.
- Jumbo bags are also used for dry contaminated packaging and rags/PPE and pharma waste. When needed contaminated packaging is shredded (as described in procedure 4k).
- Excessive packaging is removed from certain waste (e.g. tablets in blister packs) that has been overpacked by the client in secondary and tertiary packaging, to leave one layer of packaging (e.g. the blister pack), which is then placed within a large jumbo bag. Packaging is then sorted (procedure 1), baled (procedure 2) or granulated (procedure 3).
- For certain waste types, temporary storage (procedure 12) is the only process applied on site prior to transfer to local waste brokers or direct export. This includes wastes with particular hazards, including asbestos-contaminated waste and cytotoxic waste (procedure 8b); packaging of such material is carried out at the waste generator site.
- For certain types of hazardous wastes which are generated in small quantities locally, brokers are used to obtain a full load that can be shipped.
- Hazardous waste in loose powder form is received from the waste generator in jumbo bags or drums (in double bags if the powder is very fine). It is not repackaged on site, but will arrive at facility already packaged and sealed. If there is a circumstance where repackaging is required, the material will be “overpacked”, meaning that the existing packaging plus extra “overpacking” is used to secure the material.

The labelling, shrinkwrapping and preparation for export is the same as for liquid waste.

- Procedure 10e: Laboratory Waste

This category of waste requires greater care. When an enquiry is received, the client is requested to send a full list of the chemicals, the container volume, and the quantity of each. The full list is sent to the foreign facility receiving the waste for acceptance confirmation, packaging and labelling instructions. Generally there is no bulking of the same materials; these are left in the same package but ‘overpacks’ are used to minimise the risk of damage during transport (as described in procedure 10d(i)).

A transport plan is identified and the driver and the assistant or assistants depending on the quantities being carried, all ADR trained, are instructed prior to the operation, the methodology of how to temporarily pack, label, what safety wear is required and instructed of who will do what.

Apart from the CP and the CN, a sheet with the names of all the chemicals and the quantity, printed MSDSs, labels, boxes and safety wear are taken to the generator’s site. The DGSA will brief all concerned about the full operation. Once the material arrives at GSS the unloading, packaging and labelling, weighing and preparation for export are the same as for the solid and liquid waste. With laboratory waste, compatibility of materials is of a great concern and packaging is a laborious job. The most recent ADR guidance on material compatibility is used by GSS when handling and storing such waste.

- **Procedure 10f: Oily Rags**

At times dry waste material such as oily arrives at GSS in bins. The colour coded, red bins are lined internally with a jumbo bag so as to avoid spillages or dirtying of the bin. The material is removed from the bin and placed in jumbo bags. Bins are cleaned and await reuse. Bags are labelled as per previously indicated.

- **Procedure 10g: Shipment**

Once all material is prepared and enough waste to fill a 40 ft container is in storage, a packing list is prepared. This list giving details of materials, quantities, generator and weights is sent to the facility for approval and confirmation that the loading can proceed. All material is on pallets and all the pallets are given a number. Labels bearing the Permit to export number- MT..., the shipper and the generator, names, the EWC code, the trip number, a description of the material, the UN class, the UN number and the receiving facility details are all included. The load is completed when either the trailer is full or the weight has been reached. Notification of the shipment is communicated to the local and foreign authorities as well as to the foreign facility. The generator may watch their material being loaded. Documents that must accompany the trailer are prepared. The full container is weighed prior to shipment and the weight entered in the Trans Frontier Shipping (TFS) document. Labels bearing the Class of the material are affixed on all four sides of the container, as per ADR regulations. Generally the loaded trailer will start the journey on Thursday, proceeding to the Freeport, where it is loaded on the ship on Saturday morning. The trailer service is a faster way than conventional container service, arriving at destination on Tuesday, or Wednesday the following week. GSS prefers this mode of transport as the trailer will be on the road or at sea for only 4-5 days. The foreign facility immediately informs us that the trailer has arrived. The material is unloaded and treatment can start. For traceability the foreign facility will send us a certificate for each generator.

Exporting hazardous waste involves a large amount of preparation of documents. The clients are offered a 'one stop shop', an all inclusive offer, comprising the required insurances, bank guarantees and shipping, which are dealt with by Green Skip Services Ltd. Green Skip Services have to date exported a large number of containers successfully and without any problems. Transport of the material is done only once there is acceptance by the foreign facility, approval by the client and by GSS. The required documents accompany the waste material. Once at GSS site, the site manager will check the material, the quantity of pallets and drums or bags and proceeds to weighing the load. The weight of the load is then entered on the CN. Labels giving details of the date, generator, EWC code and material type are placed on the containers.

- **Records**

a. **Waste**

All incoming and outgoing waste/materials are recorded on the GSS service chits. Each hazardous waste load is recorded on the service chit, used for invoicing and client details and load description as well as the CP, CN, MSDSs and weight. The site diary is the main record keeping tool used. The operations manager enters in an excel sheet file the daily movements, both 'in' and 'out' of the facility. These records will be used in order to compile the yearly MEPA reporting, for all wastes, the broker's permit, the hazardous waste shipments, the packaging, battery and WEEE reports.

b. **Employees**

All employees are given an induction course with respect to the company policy, its mission statement and its environmental objectives. Following this they are also informed about Health and Safety, given on the job training, informed about equality issues and their rights as employees. All training given is

recorded and duly signed by the employee. Should any work related incidents happen, these are recorded by the site manager to the Human Resources section.

- Training

The directors of GSS have attended various training courses both in Malta and abroad. They in turn train employees. Training is considered crucial by GSS as can be noted by the number of training courses both held 'inhouse' and at third party training centres. Training has included ADR (transport of dangerous goods, DGSA (dangerous goods safety advisor), Fire Fighting, Health and Safety, Human Resources, First Aid, Recognition of and waste Awareness, Dismantling of WEEE, Mechanics and Electronics, Forklift driving, Drivers CPC and regular workers information meetings updating them on recent developments and aims of the company.

The workers are instructed as to the personal protective clothing required for each type of work, since health and safety are given priority. Each worker has a locker with his own PPE and all PPE given to employees is recorded. This includes, various types of gloves, glasses/goggles, ear muffs, helmets, Tyvec suits/chemical suits, safety shoes and masks of various types and filters.

All personnel are trained for their particular job. They are also aware of the precautions they need to take and the PPE that they need to wear. The site manager, supervisor, the chemist and the DGSA, give daily instructions to the various operations.

PROCEDURE 11: GAS CYLINDERS

Gas cylinders generally containing R22 or other gasses extracted from refrigeration and others requiring disposal by industry, are not treated locally but exported. GSS experience so far with regards to gas cylinders has been in temporary storage (in area 13), transporting them to a third party facility in Malta from where these were exported. In future, GSS envisages the possible storage option pending direct export; however, this will depend on the quantities of such waste.

Gas cylinders entering the facility will be only those that can be accepted by the foreign facilities and that are safe and with valves intact. This service is very limited and it has taken quite a while for it to be available to local clients.

PROCEDURE 12: STORAGE OF WASTE

Storage is carried out in the following areas:

Area	Type of waste	Maximum storage capacity
9 (Quarantine area)	Non-hazardous waste not classified elsewhere	150 m ³
11	WEEE	250 m ³
12	WEEE	140 m ³
13	Hazardous waste not stored in areas 14 and 15, including any material incompatible with waste stored in areas 14 and 15	300 m ³

Area	Type of waste	Maximum storage capacity
14	Solids, e.g. sludges	310 m ³
15	Solvents and liquids	410 m ³
18	Cardboard Plastic Baled metal Wood Any other baled / granulated waste	1,700 m ³
20	Wood	240 m ³
21	Cardboard Plastic Baled metal Wood Any other baled / granulated waste	1,100 m ³
22	Metals (stored in a metal box and aluminium skip)	40 m ³
24	Clean skips Glass	150 m ³
26	Shredded non-hazardous material destined for landfilling	270 m ³
30	Asbestos (stored in a shipping container)	67 m ³

For certain waste types, temporary storage is the only process applied on site prior to transfer to local facilities / waste brokers or direct export. This includes wastes with particular hazards and most wastes destined for disposal at the Ghallis non-hazardous landfill (including MSW).

GSS endeavours to keep waste on site to the bare minimum, for various reasons including so as to make the most efficient use of the storage capacity available, to minimise odour emissions and for safety reasons. Local waste transfers are typically carried out daily, whereas shipment of material for export is typically carried out weekly. MSW and biodegradable waste destined for landfilling is removed from the facility as soon as possible, and no such waste is stored on site after the close of each working day. The metal box / aluminium skip are emptied by local scrap metal merchants as soon as full.

PROCEDURE 13: REUSE OF WASTE ON SITE

Clean packaging that arrives with incoming waste and which is in good condition is reused for transportation purposes (e.g. in shipments of waste). This includes pallets and drums.

Empty IBCs generated during bulking of waste are either reused on site (after washing – the washwater is exported as hazardous waste) or returned to the clients for reuse.

Textiles are reused on site as rags (e.g. in the mechanics' workshop).

Clean fuel may also be used for the site / management vehicles.

OTHER MATERIALS

It is difficult to mention all the materials both hazardous and non hazardous that may enter GSS facility since enquiries to dispose of new waste are received from time to time. GSS has gained a great deal of experience throughout the years although one can never say that he/she has learnt all there is to learn. Waste is a dynamic subject and the work involved just as much. Referring always to the Integrated Pollution Prevention and Control reference Document on the Best Available Techniques one can assess whether acceptance or not is possible at the facility. One must not however forget that Malta is a country with an industry and wastes generated must be disposed of or recycled, otherwise industry will lose interest not finding solutions for its waste. We need to be flexible without being too lenient, but be in a position to decide which action to take. Malta has very limited opportunities for waste treatment plants considering the quantities and the different types of wastes being generated. Economies of scale play an important and crucial part in deciding what investment one makes in this sector.

POSSIBILITY OF WASTE IMPORTS

GSS does not exclude the fact that it can accept, always after obtaining permission from MEPA, the import of waste materials, both hazardous and non- hazardous. None of the quantities shall remain on the island but value adding and recovery of materials through sorting may be a way forward in order to survive in this industry. Requests so far have been for the acceptance for metals separation, solvent waste and WEEE waste for dismantling. All these activities will generate employment and revenue and should be given their due consideration by the relevant authorities.

IMPORT AND EXPORTS

Imports of Waste Containers:

As part of its responsibility towards its clients, GSS felt the need to compliment its waste management services by also providing waste containers and specialised waste containers to all types of industry, including the manufacturing, hospitality, medical, educational, agricultural and householders. The import and eventual sale through either tendering process or direct sales is accompanied with an educational briefing about what types of waste could be placed in bins, colour coding, recycling options and waste management programs. Waste containers are also provided as part of the bin/skip hire service for the collection of waste.

The products include different types of plastic and metal bins and facilities for wash rooms. Services include their delivery, maintenance and fitting of special features as per clients and market requirements. These are stored in two separate stores at GSS (part of area 2 and area 29). In line with the company's environmental policy, GSS imports street furniture and waste containers that are manufactured from recycled material. This to prove that products manufactured from recycled materials are just as attractive and robust as those produced from virgin material. It is also a way of showing the people how the materials that they had previously separated and diverted from landfill were used as a raw material to produce other products.

Exports:

Various types of recovered materials are exported to various countries. These are generally exported as Green List Waste, which includes cardboard, plastics, some recovered parts from dismantled WEEE and similar non hazardous wastes.

Exported material consists of recovered material such as plastics, paper, cardboard, glass and metals as well as other materials that may be recovered from the various operations at GSS. Export of these materials are accompanied by the Annex VII document. These materials are directed to recycling facilities.

Exported also is hazardous waste for treatment, generally recovery such as recovery of solvents and for solid waste when recovery is not possible, the recovery of energy from the waste. Such waste movements are covered by consignment permits and transfrontier shipment permits.

GREEN SKIP SERVICES also participates in various government tenders for the provision of waste disposal/management services as well as provision of waste containers, both internal and external type.

OTHER ACTIVITIES

Other Activities occurring at GSS include:

- Vehicles and equipment maintenance. GSS has its own mechanics and all repairs and maintenance of vehicles and equipment such as balers, granulators, shredders, mechanical shovel, power washer, forklifters and other equipment used in the day to day running of the waste management operation, is done inhouse by GSS personnel. Records of all maintenance done to all equipment, vehicles, etc are kept.
- Bins and Skips: bins and skips also require maintenance and repairs, such as fitting of lid opening mechanism, poles for litter bins, changing or repairing of lids, pedals, handles etc. Also the manufacturing of trolleys and cages required to move waste at clients' sites. A full time maintenance and welder is in charge of this section.
- Other business and activities related to the sector include training courses. GSS also holds courses in ADR driver training and in future will also hold a DGSA training course with the approval of Transport Malta. As part of its CSR, GSS also delivers talks at schools when so requested. Students visit GSS to gain first hand knowledge about waste management. GSS has for more than ten years hosted several foreign students as apprentices, in work directly related either to waste management or to specialised equipment, hazardous waste, materials reclamation, marketing and management. Requests from foreign students supersede the capacity available, generally 2 at a time and these are unfortunately turned away but referred to other companies. The requests from Maltese students are generally for interviews or information regarding dissertations.
- The first training of employees is done inhouse and that is related to the company's activities, the policies and procedures as well as work ethics. Other training either conducted at GSS or at a third party training centre include Fire Fighting, Health and Safety, Forklift driver Licence, First Aid, and any other training that from time to time required in order to keep well trained and efficient personnel. Most of the training is done inhouse by a qualified trainer due to the number of attendees, others are done off site at specific training centres. All training of each employee is recorded.

These are the procedures adopted by Green Skip Services Ltd and G.S.Rec Ltd. Experience gained throughout the years of operation has been imperative in bettering certain procedures. Waste

management is a dynamic operation and the availability of new equipment may completely change the way that things are being done today. GSS shall continue to improve its operations and increase those that up till now have not been requested. Waste management in its entirety is a complex operation and GSS shall continue to add other operations that may be requested by clients seeking to better their waste management plans in their own operations. In such cases it shall be essential that any new procedure is as per BREF indicators, however one must not forget that in this small island state infrastructure is very limited and we depend on neighbouring and distant countries to completely fulfill our obligations both as a facility and as a nation.