

**Attachment H.1 – Waste Types and Quantities – Existing & Proposed****TABLE H.1 (A) QUANTITIES OF WASTE IN RELATION TO EACH CLASS OF ACTIVITY APPLIED FOR**

Waste Management Act 3 <sup>rd</sup> Schedule (Disposal) Activities			Waste Management Act 4 <sup>th</sup> Schedule (Recovery) Activities		
Class of Activity Applied for		Quantity (tonnes per annum)	Class of Activity Applied for		Quantity (tonnes per annum)
Class 1			Class 1		
Class 2			Class 2		
Class 3			Class 3		
Class 4			Class 4	x	15,000
Class 5			Class 5		
Class 6			Class 6		
Class 7	x	15,000	Class 7		
Class 8			Class 8		
Class 9			Class 9		
Class 10			Class 10		
Class 11			Class 11		
Class 12	x	2,000	Class 12		
Class 13	x	2,000	Class 13	x	1,000

**TABLE H.1 (B) ANNUAL QUANTITIES AND NATURE OF WASTE**

Year	Non-Hazardous Waste (tonnes per annum)	Hazardous Waste (tonnes per annum)	Total annual quantity of waste (tpa)
1999			
2000		2,102	2,102
2001		5,021	5,021
2002		5,812	5,812
2003		5,755	5,755
2004		5,808	5,808
2005	1,000	8,215	9,215
2006	1,000	8,650	9,650
2007	1,000	9,115	10,115
2008	1,000	9,613	10,613
2009	1,000	10,146	11,146
2010	1,000	10,716	11,716
2011	1,000	11,326	12,326
2012	1,000	11,979	12,979
2013	1,000	12,678	13,678
2014	1,000	13,425	14,425

Quantities are based on projected growth of 7% per annum for healthcare risk waste with 2,000 tonnes of healthcare risk waste through the transfer station to be accepted and not processed.

Non-hazardous waste figures are comprised of non-hazardous waste which may be accepted at the recycling facility for reprocessing.

**TABLE H.1(C) WASTE TYPES AND QUANTITIES**

<b>Waste Type</b>	<b>Tonnes per Annum (existing)</b>	<b>Tonnes per Annum (proposed)</b>	<b>TOTAL (over life of site) tonnes</b>
Household	0	0	0
Commercial	0	1,000	10,000
Sewerage Sludge	0	0	0
Construction and Demolition	0	0	0
Industrial Non- Hazardous Solids	0	0	0
Hazardous *(Specify detail in Table H 1.2)	5,800	17,000	130,000
Inert Waste imported for restoration purposes	0	0	0

**\*Table H.1.2 HAZARDOUS WASTE TYPES AND QUANTITIES**

HAZARDOUS WASTE	DETAILED DESCRIPTION	Tonnes Per Annum (existing)	Tonnes per Annum (proposed)
Waste Oil		0	0
Oil Filters		0	0
Asbestos		0	0
Paint and Ink		0	0
Batteries		0	0
Fluorescent Light Bulbs		0	0
Contaminated Soils		0	0
<b>OTHER HAZARDOUS WASTES</b>			
Healthcare Risk Waste – Suitable for treatment by STI Model 2000 process	180101, 180102, 180103*, 180104, 180107, 180201, 180202, 180203, 180206	5,800	15,000
Healthcare Risk Waste – Unsuitable for treatment by STI Model 2000 process	180102, 180103*, 180106*, 180108*, 180109, 180202*, 180205*, 180207*, 180208	0	2,000

**Note** that both hazardous and non-hazardous healthcare risk waste is received by the facility within the same bin as such it is not possible to distinguish between the quantities of hazardous and non-hazardous waste received.

### **Attachment H.2 – Waste Acceptance Procedures**

Waste reception procedures have previously been described in Attachment D.2 of this application. For reasons of clarity, the procedures are repeated here. Included in this section as attachment H.2 D1 are copies of the sites operating procedures OP2, OP3, and OP4 covering the reception, acceptance, and rejection of waste.

#### **Waste Reception for Waste Treatment Process (Unit 430)**

On arrival on site, the waste vehicle reverses into the plant. The driver presents a member of plant staff with consignment notes for the waste and downloads waste details into the site computer system from his portable data unit.

The site operator checks to confirm that the information presented is correct and the driver offloads the vehicle. As each bin is off-loaded, it is scanned and weighed by the plant operator. The bin is placed into the holding area for processing.

If the waste is suitable for treatment, it is weighed and logged onto the system. Any waste received not matching the consignment note provided is placed into the quarantine store pending an investigation. If the waste is not suitable for treatment, it is transferred to the waste transfer process in the adjoining building.

#### **Waste Reception for Waste Transfer Process (Unit 420)**

On arrival on site, the waste vehicle reverses into the plant. The driver presents a member of the plant staff with the consignment notes and downloads details into the site computer system from his portable data unit.

The site operator checks to confirm that the information presented is correct and the driver begins to offload the vehicle. As each cage is off loaded, it is scanned and weighed by the plant operator. The cage is then placed into storage.

Waste is also received from the quarantine store of waste treatment process undertaken in the adjacent building. This waste is that which the site is licensed to receive but which is unsuitable for the waste treatment process.

If the waste is suitable for transfer, it is weighed and logged onto the system. Any waste received that does not match the consignment note provided is placed into the quarantine store pending an investigation.

### **Waste Storage for Waste Recovery Process (Unit 420)**

The waste storage area will consist of two sections. One section will hold the plastic waste received which may be received for blending. The second section will hold the treated healthcare waste ("flock") received from the Waste Treatment Process if this waste is to be manually input into the process. This should only occur on rare occasions should the need arise and will not be the normal operation. The site will use a log sheet to identify which bags of flock relate to waste processed on individual days. It is envisaged that the treated waste will be normally conveyed from the treatment process to the recovery process through an automatic conveyor.

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***Attachment H.2 D1 – Procedures for the Reception, Acceptance, and Rejection of Healthcare Risk Waste***

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**Procedures Manual Sterile Technologies Ireland Limited**

Section: OP 02 Reception / Registering of Bins

Date: 21 April 2004

Issue: 3

Page: 1 of 1

**OP 02 MARSHALLING & REGISTERING OF BINS**

1. The purpose of this procedure is to ensure that bins are properly accepted and recorded into the facility and marshalled in an orderly fashion for processing.
2. The floor staff shall assist the driver to unload the bins from the vehicle.
3. The Shift Supervisor shall ensure that every bin is channelled through the reception/weighing-in system.
4. The Shift Supervisor shall ensure that the delivery/collection notes and C1 forms are completed and signed
5. Operatives shall check each bin for defects. Any defective bins will be marked for repair after emptying and washing.
6. The floor staff shall line up the bins in an orderly fashion ready for processing.

**Related Documents**

Delivery/Collection Notes STI 18

CI Forms STI 19

Written by: Peter Cazalet

Approved by:

Date: 21 April 2004

Date:



**Procedures Manual Sterile Technologies Ireland Limited**

Section: OP 03 Waste Acceptance

Date: 10 January 2005

Issue: 4

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**OP 03 WASTE ACCEPTANCE**

1. This procedure ensures that
  - a) Only appropriate types of waste will be treated at the facility.
  - b) Waste shall only be accepted at the facility in the appropriate bins.
  - c) The quantity of waste to be accepted at the facility is measured and regularly compared with the Waste Licence limit.
2. The Commercial Director will be responsible for ensuring that Customers/Generators of waste have signed a declaration (STI 03) certifying that they are aware of what constitutes Inappropriate Waste to satisfy Condition 5.2 of the STI Waste Licence 55-1 prior to accepting their waste into the facility.
3. The STI supervisors and floor staff at the facility will be responsible for ensuring that only appropriate waste in the correct bins is accepted for treatment. If Inappropriate waste is found, it will be treated according to OP 04
4. Waste shall only be accepted at the facility in bins owned and controlled by STI Ltd. Each bin will be weighed-in in the reception area as per procedure OP 01
5. Waste arriving in non-STI bins shall be immediately rejected for treatment and the bins in question moved into the quarantine cage. The sender will be contacted and given the choice of removing the bins or for STG to deliver them to IES for appropriate disposal.. STG does not currently hold Transfer Station licence.

6. The Collection Note and C1 of each load shall be checked and signed off by the Duty Supervisor.
7. Incoming bins will be scanned into the Mediwaste system on arrival and weighing-in and will also be scanned after their contents have been emptied into the shredders, to confirm the contents have been processed.
8. The contents of each bin will be visually inspected before processing by floor staff. If any inappropriate or excluded waste is seen in the bin, the operator shall put it into the Quarantine Cage (OP 04).
9. The quantity of waste accepted and processed each month will be reported to the Operations Manager, including year-to-date cumulative totals and, if necessary, the estimated annual total. The purpose is to have time to alert the EPA if the annual processing limit is likely to be exceeded.

#### **Related Documents**

Waste Licence 55-1	STI 52
Monthly waste reports	
Year to Date Cumulative Totals	
Reception/registering of bins	OP 01
Operation of Shredder/STI Model 2000	OP 07
Dealing with Excluded/Inappropriate Waste	OP 04
Customer Declarations	STI 03

Written by: Peter Cazalet

Approved by:

Date: 19 January 2005

Date:

**Procedures Manual    Sterile Technologies Ireland Limited**

Section:                    OP 04    Dealing with Excluded / Inappropriate Waste

Date:                        19 January 2005

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**OP 04                    INAPPROPRIATE OR EXCLUDED WASTE HANDLING**

1. This procedure ensures that
  - a. No inappropriate or excluded waste is processed.
  - b. Inappropriate waste is quarantined and recorded.
  - c. Inappropriate or excluded waste is sent to IES for safe disposal
2. The Commercial Director will be responsible for ensuring that Customers/Generators of waste have signed a declaration (STI 03) to show that they are aware of what constitutes inappropriate or excluded waste, so as to avoid its inclusion in waste collections made by STI (Waste Licence condition 5.2).
3. Excluded or inappropriate waste may be collected by STI but will be delivered directly to Onyx Environmental Services or another registered transfer station for safe disposal.
4. The STI supervisors and operators receiving waste at STI will be responsible for ensuring that no inappropriate or excluded waste is treated at the facility.
5. If any inappropriate or excluded waste is found, the warehouse staff will either immediately move the bin as received into the quarantine cage, or will transfer any such waste to another bin which will be immediately moved into the quarantine cage.
6. The quarantine cage shall be kept locked at all times unless waste is being moved in or out.

7. The Floor Supervisor shall ensure that all inappropriate or excluded waste is recorded on an 'Excluded and Inappropriate Waste' form (STI 17)
  
8. Suspect containers with inappropriate or excluded waste will be sent as soon as possible to OES with an accompanying C1 form
  
9. Any excluded waste intentionally collected from a customer by STI will be delivered directly to OES using with an accompanying C1 form
  
10. Completed STI 17 forms shall be left with the Operations Manager, who will ensure that the forms are correctly completed and will distribute the different copies as follows
  - Top Copy (White) Accounts
  - 2<sup>nd</sup> Copy (Blue) AER File
  - 3<sup>rd</sup> Copy (Green) Transport
  - 4<sup>th</sup> Copy (Yellow) Commercial Director
  
11. The Commercial Director will be responsible for contacting the customer and arranging for Accounts to invoice the customer.
  
12. A breakdown of inappropriate/excluded waste deliveries shall be included in the Annual Environmental Report.

**Related Documents**

Excluded & Inappropriate Waste Form	STI 17
Customer Declaration	STI 03

Written by: Peter Cazalet

Approved by:

Date: 19 January 2005

Date:

### ***Attachment H.3 – Waste Handling***

Waste storage procedures have previously been described in Attachment D.2 of this application. For reasons of clarity, the procedures are repeated here.

#### **Waste Storage for Waste Treatment Process (Unit 430)**

This part of the site has a capacity to hold up to 400 bins of waste. Bins are rotated through the site on a first in / first out basis. Personnel on site are able to interrogate the site's computer system to determine the total mass of waste on site, the total number of bins on site and length of time any particular bin has been on the site. The maximum length of time that waste will be stored in this area is 72 hours.

#### **Waste Storage for Waste Transfer Process (Unit 420)**

This part of the site has a capacity to hold up to 150 cages of waste. Also located in this area are large chest freezers for the containment of anatomical waste.

Cages of waste received for storage are segregated based on their contents. Cages containing rigid one-way containers of anatomical waste or other wastes, which are likely to give rise to odours, are decanted into the freezers. The rigid one-way containers are marked with the date the waste is received and the consignment note number to aid traceability. A log of waste placed in each freezer is maintained to ensure that waste is rotated. All other cages of waste are placed into storage.

Cages are rotated through the site on a first-in/ first-out basis. Personnel on the site are able to interrogate the site's computer system to determine the total mass of waste on site, the total number of cages on site, and the length of time any particular bin has been on the site. The maximum length of time that waste will be stored in this area is 42 days though generally waste will not be stored for longer than 14 days.

#### **Waste Storage for Waste Recovery Process (Unit 420)**

The waste storage area will consist of two sections. One section will hold the plastic waste received for blending. The second section will hold the treated healthcare risk waste ("flock") received from the Waste Treatment Process if this waste is to be manually input into the process. This should only occur on rare occasions should the need arise and will not be the normal operation. The site will use a log sheet to identify which bags of flock relate to waste processed on individual days. It is envisaged that the treated waste will be normally conveyed from the treatment process to the recovery process automatically through a conveyor.

***Attachment H.4 – Waste Arisings***

The site will produce no more than 15,000 tonnes per annum of non-hazardous waste per year. The site does not produce any hazardous wastes.

Table H.1 (ii) over provides estimates of the wastes arising from the expanded facility and are based on the maximum expected throughput of the site at full capacity (15,000 tonnes per annum). The actual throughput of the plant will initially be considerably less than this. It is anticipated that as the recovery process is developed and brought on line that the amount of material sent to landfill for disposal will be substantially reduced.

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**TABLE H.1 (ii) WASTE – Other Waste Recovery / Disposal**

Waste Material	EWC Code	Main Source	Quantity		On-site recovery/disposal	Off-site recovery, reuse, or recycle	Off-site Disposal
			Tonnes/month	m3 / month			
Treated healthcare risk waste (Note 1)	19 02 03	Treatment process (STI Model 2000)	1,250 t (max.)	3,125m3 (max.)	None	None	Landfill KTK (Kilcullen) – 81-2
Treated healthcare risk waste (Note 1)	19 02 03	Treatment process (STI Model 2000)	1,250 t (max.)	3,125m3 (max.)	Recovery process (Unit 420)	None	None
Recovered paper & textiles (Note 2)	19 12 01 / 19 12 08	Recovery process	541 t (max.)	1800m3 (approx)	None	TBA (Note 3)	None
Recovered paper & textiles (Note 2)	19 12 10	Recovery process	541 t (max.)	1800m3 (approx)	None	TBA (Note 3)	None
Recovered metals	19 12 02	Recovery process	23 t (max.)	10m3 (approx)	None	TBA (Note 3)	None
Recovered plastic	19 12 04	Recovery process	350 t (max.)	875m3 (approx)	None	TBA (Note 3)	None
Recovered glass	19 12 05	Recovery process	23 t (max.)	12 m3 (approx)	None	TBA (Note 3)	None

Note 1: Until the recovery process has been developed and commissioned treated healthcare risk waste will be sent to landfill for disposal. Waste will also be sent to landfill if for any reason the recovery process is not operating.

Note 2: Initially separated paper and plastic will be sent off-site for recovery by a dedicated reuse company. Eventually it is the intention of STI that the separated paper and textiles can be turned into a refuse-derived fuel and sold as such.

Note 3: In parallel with the development and commissioning of the recovery process STI will enter into contractual agreements with licensed waste recovery, reuse and recycling companies for the disposal of the separated materials.

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