

OPERATING TECHNIQUES

For



**SIMS
METAL
MANAGEMENT**

Recycling Facility

At

**Northside,
South Dock,
Alexandra Dock,
Newport
NP20 2WE**

**EAWML 30264
EPR/KP3195FW**

Permit Holder:

Sims Group UK Limited
Long Marston
Stratford-upon-Avon
Warwickshire
CV37 8AQ

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1. GENERAL INTRODUCTION

1.1 Sims Group UK Limited currently operates EAWML 30264 at Northside, South Dock, Alexandra Dock, Newport.

1.2 The site receives, processes and recovers WEEE consisting mainly of refrigeration equipment. The site has the capacity to store more than 50 tonnes of hazardous waste at any one time.

1.3 The site is leased from Associated British Ports. Access is via the site gates and these are locked at all times when the site is non-operational. Visitors may only gain access if escorted or with specific permission.

1.4 The site undertakes a range of waste management activities including;

- Storage and treatment of hazardous WEEE;
- Storage and treatment of non hazardous WEEE;
- Storage of batteries;
- Storage of tyres, plastic and packaging.

1.5 Relevant Regulations, Technical Guidance Notes and other documentation

In accordance with the Environmental Permitting (England and Wales) Regulations, operators are required to confirm whether their proposed operation will take place in line with standards set by any relevant Environment Agency Sector Guidance Note and legislation. Where the proposed operations will deviate from the relevant Guidance Note or where there is no guidance for the operation, the permit supporting information must include:

1. Description of the operation that will take place at the site
2. Justification of the measures that will be used to control emissions from the processes.

There is no specific Sector or Technical Guidance Note for all the operations at Newport. However a number of documents are relevant to the operations and Sims operates in accordance with these:

- Guidance on the Best Available Treatment Recovery and Recycling Techniques (BATRRT) and treatment of Waste Electrical and Electronic Equipment Directive, DEFRA
- Environmental Permitting Guidance Waste Electrical and Electronic Equipment Directive, DEFRA
- Environmental Permitting Guidance, the Waste Framework Directive, DEFRA
- Sector Guidance Note EPR5.06: Guidance on the recovery and Disposal of Hazardous and Non-hazardous Waste, Environment Agency

Relevant legislation covering the activities on site is as follows:

- Waste Framework Directive
- WEEE Directive

- Hazardous Waste Directive

The facility is a 'Newly Prescribed Activity' that was in operation on 7th January 2013. The facility undertakes the recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment. The site also has the capacity to store more than 50 tonnes of hazardous waste at any one time.

The relevant activities are therefore:

Section 5.3 A(1) a) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving (ii) physico-chemical treatment.

Section 5.6 A (1) (a) Temporary storage of hazardous waste with a total capacity exceeding 50 tonnes pending any of the activities listed in Sections 5.1, 5.2, 5.3 and paragraph (b) of this Section, except-

(i) temporary storage, pending collection, on the site where the waste is generated, or

(ii) activities falling within Section 5.2

This 'Operating Techniques' document supersedes all previous Working Plans and Operating Techniques associated with EAWML 30264.

2. SPECIFIED WASTE MANAGEMENT OPERATIONS

2.1 Description of the Site

The location of the site, its boundaries and surrounding features are highlighted in Appendix 1.

The site is located at dockside, an essentially industrial area remote from residential developments with the nearest being 1.2 km away.

Site surface water drainage is via interceptors to the dock and authorized by consent to discharge AN032570101. Consent AN0325702 is held for discharge from the onsite Package Sewage Treatment Works.

2.2 Operations

The facility is designed for the specialist recovery of end of life refrigeration equipment.

WEEE wastes will be managed in accordance with the WEEE Directive and relevant legislative requirements.

Tyres may be accepted on site for storage prior to removal for processing at a suitably authorised facility.

Batteries may be accepted on site for storage prior to removal for processing at a suitably authorised facility. Lead acid batteries shall be stored in battery boxes.

Extent of the Fridge Plant Installation (Section 5.3 A (1) a) (ii)

STU – Fridge Plants 1 & 2:

Annex II (R codes) – R3: Recycling/reclamation of organic substances which are not used as solvents

R4: Recycling/reclamation of metals and metal compounds

R5: Recycling/reclamation of other inorganic compounds

Fridge Plants 1 & 2 infeed storage and immediate output:

Annex II (R codes) - R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)

Treatment Capacity Calculation (Section 5.3 A (1) a) (ii)

The 'daily treatment capacity' of the STU is 3,400 units (approx. 120 tonnes), based on 24 hour operation. The site permit restricts annual throughput to 74,999 tonnes and the maximum quantity of refrigeration units stored on site at any one time does not exceed 25,350 units.

Other Waste Activities Remaining Under the Permit

Permitted treatment activities (other than STU activity) include the storage of hazardous and non hazardous WEEE, and manual treatment of hazardous and non hazardous WEEE.

Classification of the Waste Management Operations – Waste Directive Codes:

R3: Recycling/reclamation of organic substances which are not used as solvents

R4: Recycling/reclamation of metals and metal compounds

R5: Recycling/reclamation of other inorganic compounds

R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)

No wastes are disposed of at the site.

2.3 Locations of the Waste Management Operations

Appendix 1 shows the entire area of the site and detail key features of the facility including infrastructure and drainage and storage locations.

Due to the constantly changing operational and commercial pressures of the metal industry, a degree of flexibility with regard to the storage locations is required. Depending of operational demands at any one time, it may be necessary to relocate specified activities within the overall licensed area. However, in the event of such demand, the overriding principle will always be that the operation will be carried out in such a manner to prevent any harm or risk to the environment.

2.4 Permitted Waste Types

<u>STU & Infeed Storage DAA</u>	
Material	EWC code
Discarded equipment containing chlorofluorocarbons, HCFC, HFC	16 02 11*
Discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12	16 02 13*
Hazardous components removed from discarded equipment	16 02 15*
Discarded equipment containing chlorofluorocarbons	20 01 23*
Discarded electrical and electronic equipment containing	20 01 35*

hazardous components	
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Output Storage DAA	
Other engine, gear and lubricating oils	13 02 08*
Chlorofluorocarbons, HCFC, HFC	14 06 01*
Other solvents and solvent mixtures	14 06 03*
Aqueous liquid wastes other than those mentioned in 16 10 01	16 10 02
Aqueous concentrates other than those mentioned in 16 10 03	16 10 04
Iron & Steel Waste	19 10 01
Non-ferrous Waste	19 10 02
Fluff-light fraction and dust other than those mentioned in 19 10 03	19 10 04
Other fractions containing dangerous substances	19 10 05*
Other fractions other than those mentioned in 19 10 05	19 10 06
Ferrous metal from other waste facilities (mechanical treatment)	19 12 02
Non-ferrous metal from other waste facilities (mechanical treatment)	19 12 03
Rubber & Plastic	19 12 04
Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	19 12 12

Non DAA / STU Waste Activities	
Material	EWC code
Paper and cardboard packaging	15 01 01
Plastic packaging	15 01 02
Wooden packaging	15 01 03
Metallic Packaging	15 01 04
Mixed Packaging	15 01 06
Tyres	16 01 03
Transformers and capacitors containing PCBs	16 02 09*
Discarded equipment containing or contaminated by PCBs other than those mentioned in 16 02 09	16 02 10*
Discarded equipment containing chlorofluorocarbons, HCFC, HFC	16 02 11*
Discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12	16 02 13*
Non Hazardous WEEE	16 02 14
Hazardous components removed from discarded equipment	16 02 15*
Non Hazardous components removed from WEEE	16 02 16
Lead batteries	16 06 01*
Ni-Cd batteries	16 06 02*
Mercury containing batteries	16 06 03*
Alkaline batteries	16 06 04
Other batteries and accumulators	16 06 05
Separately containing electrolyte	16 06 06*
Cables	17 04 11
Other insulation materials consisting of or containing dangerous substances	17 06 03*
Insulation materials other than those mentioned in 17 06 01 and 17 06 03	17 06 04
Iron & Steel from Shredding	19 10 01
Non-ferrous from Shredding	19 10 02

Fluff-light fraction and dust other than those mentioned in 19 10 03	19 10 04
Other fractions containing dangerous substances	19 10 05*
Other fractions other than those mentioned in 19 10 05	19 10 06
Ferrous metal from other waste facilities (mechanical treatment)	19 12 02
Non-ferrous metal from other waste facilities (mechanical treatment)	19 12 03
Plastic & rubber from the mechanical treatment of waste	19 12 04
Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	19 12 12
Fluorescent tubes and other mercury-containing waste	20 01 21*
Discarded equipment containing chlorofluorocarbons	20 01 23*
Batteries and accumulators	20 01 33*
Batteries and accumulators	20 01 34
Discarded electrical and electronic equipment containing hazardous components	20 01 35*
Non Hazardous WEEE – household/ local authority	20 01 36
Plastics	20 01 39
Metals – household/ local authority	20 01 40

2.5 Waste Quantities

The total tonnage accepted per annum is a maximum of 74,999 tonnes.

2.6 Hours of Operation

No limitations are imposed upon the hours of operation.

Lighting is provided in all areas. This lighting is activated from dusk to dawn each day irrespective of operations, thus facilitating safe working of all staff including security personnel.

2.7 Waste Acceptance Procedures

Pre Acceptance Procedure

There is a pre acceptance system in place to prevent acceptance of unsuitable wastes and ensure their suitability for the treatment process. This consists of checks undertaken by Commercial/ Site Management and could include information on the process giving rise to the waste, likely quantities and any hazardous associated with the waste.

For weighbridge traffic, pre acceptance system consists of provision of information via system of signage.

Waste Acceptance and Inspection Procedure

All vehicles bringing waste to the site will be directed to the weighbridge where the paperwork is scrutinised by the Weighbridge Operator to ensure it is in line with Duty of Care requirements and Hazardous Waste Regulations. Such

paperwork may include, weighbridge tickets, transfer notes, season tickets for contracted waste and hazardous waste consignment notes.

Weighbridge tickets are produced for all wastes delivered which contain the name of the supplier / producer, the registration number of the carrier's vehicle, details of waste type, time and date. Hazardous waste consignment notes are completed as necessary.

As far as possible all loads are visually assessed from the weighbridge, and may be rejected if the waste is found to be mis-described or non-permitted. If there are other irregularities with the paperwork, the Weighbridge Operator may also radio a designated site operative and request specific inspection of the load when deposited at the storage area. Further inspection follows before and during the unloading stage. If the site operative is unsatisfied with any particular item(s) or indeed the whole load, its removal off-site by the driver is required or, if the Company considers it to be best environmental option, the material is quarantined pending further investigation and possible referral to the Environment Agency.

Non-conforming wastes will be placed immediately in a designated quarantine area until suitable disposal arrangements can be made. There will be no mixing of non-conforming (quarantined) wastes with authorised wastes. Non-conforming wastes will be stored separately where possible and when legislation requires. Any non-conforming wastes that are defined as Hazardous under the Hazardous Waste Directive will be handled and moved off site in line with the requirements of the Directive.

Where necessary the producer/customer and Natural Resources Wales will be informed of a rejected load and all details relating to the load recorded.

2.8 Waste Storage

Waste will be treated on impermeable pavement with sealed drainage system.

Hazardous wastes will be stored on impermeable pavement linked to a sealed drainage system with additional containment where appropriate.

Fluids will be stored in containers with appropriate secondary containment measures capable of holding at least 110% of the volume of the primary containment vessel.

All storage areas will be provided with spillage collection facilities including spill kits.

2.9 Waste Treatment Processes

Please see Appendix 2 for process descriptions of installation activity.

2.10 Energy Usage

Sims has an Energy Policy to ensure that energy is used efficiently at the site. This scope of the policy is extended to include this facility and to identify the energy consumption and methods of saving energy at the site.

2.11 Raw Materials and water

The set up of plant and equipment minimises the consumption of raw materials and water at the site.

3 EMISSION CONTROL AND MONITORING

3.1 Point Source Emissions

Point source emissions from the installation are limited to those detailed below:

Emissions to air from Fridge Plants 1 & 2 (see Appendix 1).

Both plants are equipped with automatic emission monitoring equipment: self – calibrating Fresenius CHC Gas measuring apparatus. Such equipment is situated on the outflow pipes inside the building. The readings are continuously shown on the front of the unit and the consoles. From these readings an emission level in g/hr can be determined. The consoles are manned and monitored when the plants are operational. Should emissions levels rise, maintenance controllers are contacted immediately to investigate.

Results of monthly spot samples are submitted to NRW on a monthly basis.

3.2 Odour

Activities on site are managed to minimize the risk of odour related impact. During inspections the presence of any offensive odours will be noted and recorded in the Site Diary. The source of any problem will be investigated and dealt with as necessary to remove the problem. Any complaints received will be recorded in the Site Diary and actioned where appropriate.

3.3 Noise and Vibration

Activities on site are managed to minimize the risk of noise related impact. Nevertheless, during inspections the presence of nuisance noise will be noted and recorded in the Site Diary. The source of any problem will be investigated and dealt with as necessary to remove the problem. Any complaints received will be recorded in the Site Diary and actioned where appropriate.

3.4 Dust

Activities on site are managed to minimize the risk of dust related impact. During inspections the presence of any nuisance dusts will be noted and recorded in the Site Diary. The source of any problem will be investigated and dealt with as necessary to remove the problem. Any complaints received will be recorded in the Site Diary and actioned where appropriate.

4 **MANAGEMENT**

Sims Group UK Limited currently operates an internal Environmental Management System (EMS).

The management system includes standard operating procedures and safe working practices that minimise the environmental risks and impacts of the normal operations and include contingency plans to minimise the effect of breakdown, accidents etc. These include procedures relating to waste acceptance and environmental monitoring.

A planned programme of maintenance for all infrastructure, plant and equipment is specified in the management system. All plant is inspected and maintained in line with the manufacturer's instructions or other appropriate regime.

Sims Group UK Limited has a training and development programme designed to ensure that staff are suitably trained to undertake their duties. The roles and responsibilities of staff on site are clearly defined and training records for each member of staff maintained and reviewed regularly to ensure competence is maintained and up to date.

Key personnel at Site Management level have completed relevant competence assessment & Continuing Competence Assessment as applicable. Such staff will be on site to ensure that operations are undertaken in line with Sims Policy and Processes.

All contractors visiting the site receive an induction to ensure that they are aware of the scope of their work, the accident management/emergency procedures for the site and any other management systems appropriate to their role.

Sims Group UK Limited has an Emergency Contingency Plan that together with the Environmental Management System and Operational Techniques for the site, meet the requirements of the 'How to Comply with your Environment Permit' guidance.

In the event of an incident, details are recorded and a full review undertaken. This review will include the following:

- Cause of the incident;
- Effectiveness of management technique
- Effectiveness of Emergency Contingency Plan and Procedures; and
- Recommendations for management technique and/or emergency procedure to reduce risk of future incidents.

5 SITE RECORDS

The operator will ensure the following information is recorded:

- Site inspections by the operator or other body and any subsequent issues and corrective actions taken;
- Emergencies;
- Complaints and actions taken;
- Plant/equipment failure;
- A record of any rejection of waste;
- Any queries with Waste Carriers;
- Technically competent manager – times on site;
- Any incidents/accidents on site and actions taken;
- Security failures;
- Severe weather conditions.

All records will be held in the site office and will be available on request. All records, which are required under the conditions of the Environmental Permit, shall be maintained and kept secure from loss, damage or deterioration. Any records held electronically will be backed up on a regular basis.

APPENDIX 1



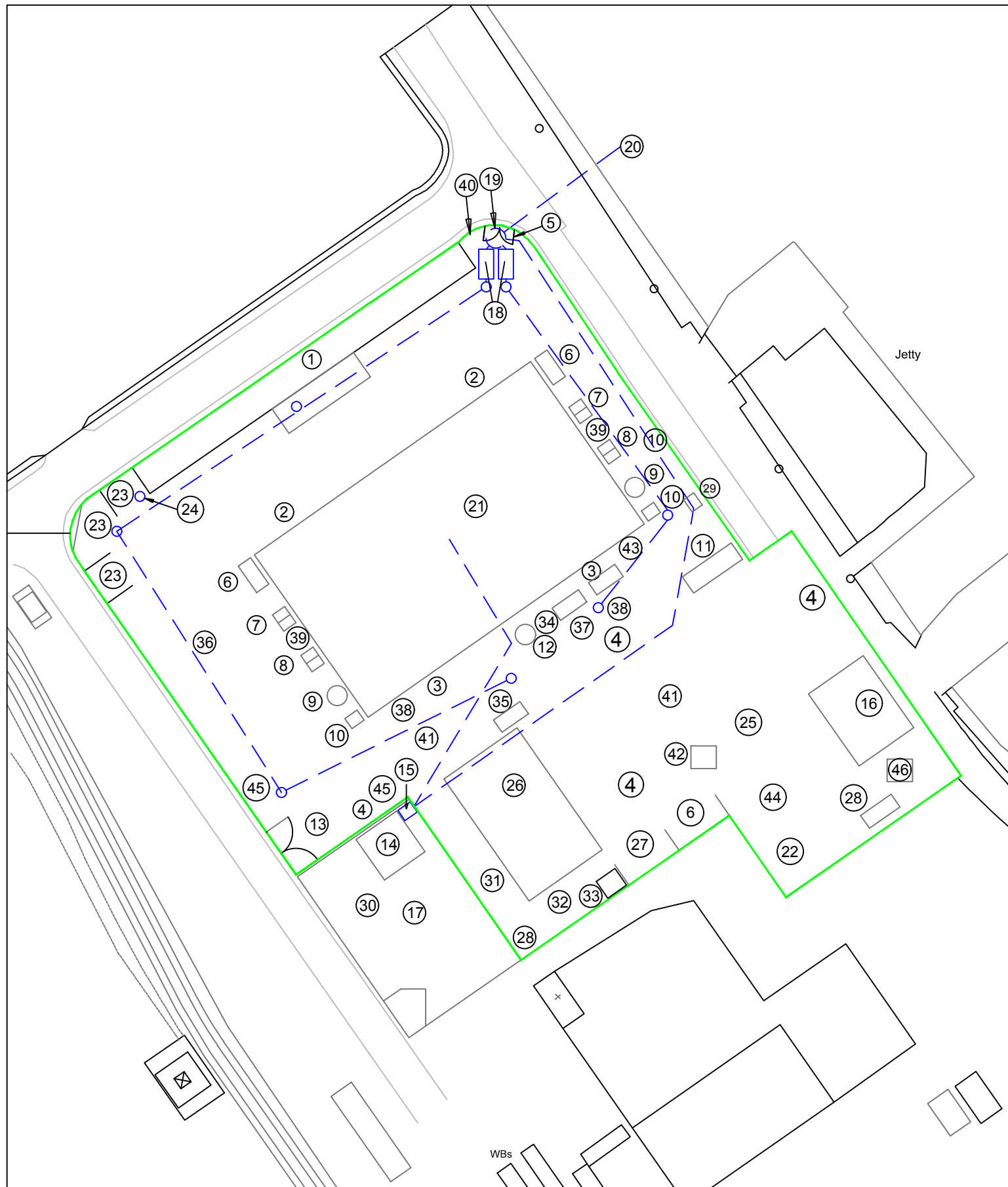
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Notes

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Legend

-  Permit Boundary
-  Drain



Legend

- 1 : Fridge Storage Area Canopy
- 2 : Vehicle Unloading Area
- 3 : Emission Point to Air
- 4 : Storage for "Bagged PUR & Plastics"
- 5 : Lockable Gates
- 6 : Frag Bay
- 7 : Bag Filling Station "Plastics"
- 8 : Bag Filling Station "Foam"
- 9 : Nitrogen Tank
- 10 : CFC Storage Bottle
- 11 : Electrical Sub-Station
- 12 : Oil Storage Tank
- 13 : Motorised Barrier
- 14 : Modular Offices
- 15 : Klargest Bio-disc "Sewage Treatment Unit"
- 16 : Building for Commercial Fridge Treatment
- 17 : Car Park
- 18 : Klargest Interceptors "Model NS 150"
- 19 : Sample Point
- 20 : Outfall to Dock
- 21 : Building "Fridge Recycling Plant"
- 22 : Additional Fridge Storage
- 23 : Storage Area /Compressors / Plastic / Non Ferrous
- 24 : Sealed Sump
- 25 : Storage area - Fridges, and product from treatment process
- 26 : Maintenance Workshop Building
- 27 : Light Iron Storage Bay
- 28 : Gas Bottles (Non-CFC)
- 29 : Diesel Tank
- 30 : Emergency Assembly Point
- 31 : CRT / Monitors Storage
- 32 : Oil Storage (for maintenance)
- 33 : Motor Stores Container
- 34 : PPE Container
- 35 : Parts Washer Container
- 36 : Compressor Rapid Loader
- 37 : Lockers and Changing Rooms
- 38 : Compressor Housing Container
- 39 : Condensate Tank
- 40 : Transport Intake Office
- 41 : Loading Area
- 42 : Storage Containers
- 43 : Nitrogen Compressor
- 44 : Ammonia Circuits
- 45 : Non Ferrous Storage
- 46 : "5S" Storage

Basemap sourced from SIMS Drawing No.
CJBFRP_WP_R7 Rev 007
(03/12/2014)

D	No. 34 moved and renamed	JAN 18	RJ	GS
C	Minor amendments	SEP 17	RJ	GS
B	Features Added	MAY 17	RJ	GS
A	Features Added	FEB 17	RJ	GS
Rev	Description	Date	Initial	Checked



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Client SIMS GROUP UK LTD.

Project NEWPORT FRIDGE PLANT

Title SITE LAYOUT

Status	Drawn By	PM/Checked by
DRAFT	RJ	GS
Job Ref	Scale @ A3	Date Created
JER6361	1:1,000	MAY 15

Drawing Number	Rev
JER6361-011	D

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APPENDIX 2

APPENDIX 2

Newport Fridge Plant Process Description:

Stage 1 Treatment:

Stage 1 treatment takes place within a building and is linked to both of the fridge treatment plants. The Stage 1 treatment operation is designed to secure the removal and isolation of ODS from within the cooling systems of the refrigeration units and to facilitate removal of compressors, their lubricating oils and any related mercury switches. The CFC – Oil Siphoning and Recovery System installed is designed exclusively for the siphoning of CFCs and oil from cooling devices.

The process results in removal of 99% of the compressor oil and refrigerant. The compressor oil shall be processed to ensure that the concentration of the refrigerant is <0.9% w/w. Samples are taken and results submitted to NRW on a monthly basis.

Switches containing mercury shall be removed from the units and placed in a suitable container.

Where such constituents have been removed from units prior to their delivery to the site, the Stage 1 process may not be necessary and these units will be presented directly to the Stage 2 operation, following inspection.

Large commercial units accepted at the site will also receive Stage 1 processing as necessary however these units may also require dismantling or size reduction into manageable sized pieces in order to allow their feeding into the Stage 2 plants. Such size reduction will occur within a building.

Stage 2 Treatment

Following Stage 1 processing (either on-site or prior to delivery), the carcasses are fed into the appropriate QZ chamber on a conveyor belt. This is a batch process with some 6 to 8 units loaded per batch to each processing line.

The twin systems operate under an atmosphere of nitrogen at a pressure lower than ambient.

Fragmentation takes place within the QZ by motion being set up through contact with rotating chains and the units colliding against each other. Due to impact and friction the temperature rises to some 70⁰C which assists the efficiency of ODS removal.

The destruction cycle is completed within approximately 4 minutes, during which the insulation foam is ground down to less than 0.2mm particle size. This facilitates extremely high levels of evaporation of ODS from the pores of the particles and the liberated gas is transported by the nitrogen carrier for condensation within the cryo-condensation section. Thus affording separate collection.

The condensation operation occurs in three stages. Firstly, any entrained water is removed by cooling the gases to about 2⁰C and isolating. Secondly, cooling the

residue gases to some -150°C condenses the ODSs and enables re-circulation of the cleansed nitrogen. Recovered gases will be stored in sealed containers prior to removal to an authorized facility.

Removal and isolation of the separated components of the carcasses is achieved by a combination of screening, density classification and magnetism. This enables collection of:

- Polyurethane foam
- Plastics
- Non-ferrous metal
- Ferrous metal

All water generated from the processing of refrigeration units shall be collected and stored in a sealed container.

Both recovery plants are designed to achieve the following performance standards:

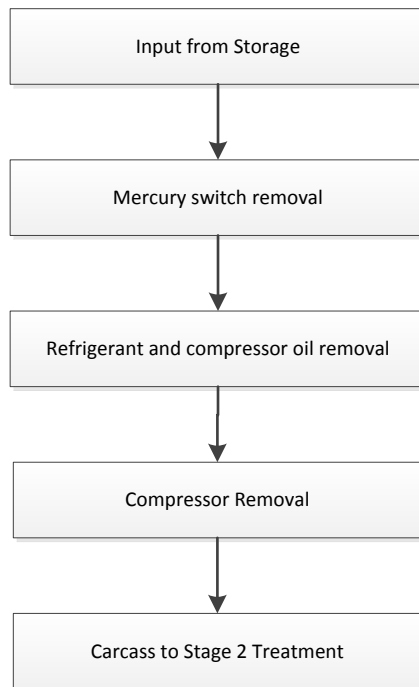
- The quantity of foam remaining on the granulated metal after processing shall not exceed 0.5% w/w
- The quantity of foam remaining on the granulated plastic after processing shall not exceed 1.0% w/w
- The quantity of residual blowing agent remaining in the polyurethane foam shall not exceed:
 - 0.5% w/w where foam is stored in a contained environment subject to further recovery or destruction
 - 0.2% w/w in other cases

Samples are taken and results submitted to NRW on a monthly basis.

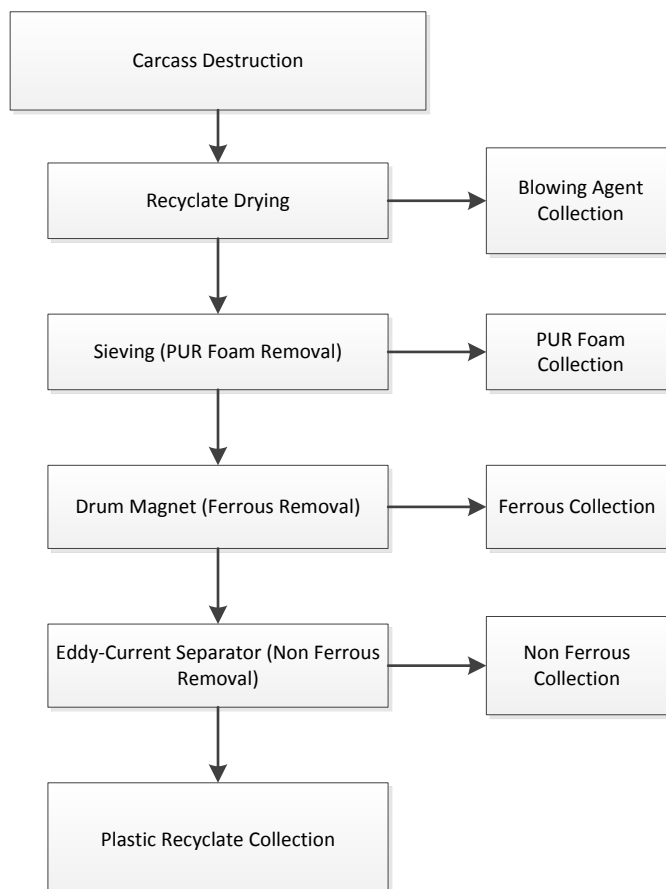
APPENDIX 3

Fridge Treatment Plant Process Flow

Stage 1 Treatment Process



Stage 2 Treatment Process



APPENDIX 4

Refrigerator treatment plant

