

Variation to IPPC permit application for Metalco Ltd. Waste Management Facility

*As per ERA requirements for alteration of activities carried out at
the facility*

IPPC Form C Report

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Table of Contents

| | | |
|------------|---|-----------|
| 1.0 | Introduction | 1 |
| 2.0 | Non-technical description | 3 |
| 3.0 | Site maps and reports..... | 5 |
| 3.1 | Site history and uses | 5 |
| 3.2 | Site plan showing location of installation | 7 |
| 3.3 | Site layout plans showing nature of major site features and activities..... | 8 |
| 4.0 | Environmental Management System..... | 10 |
| 4.1 | Management and Reporting Structure..... | 10 |
| 4.2 | Environmental Policy | 10 |
| 4.3 | Environmental Objectives and Targets..... | 10 |
| 4.4 | Environmental Management Programme (EMP) | 10 |
| 4.5 | Documentation | 10 |
| 4.6 | Corrective Action | 10 |
| 4.7 | Awareness and Training..... | 10 |
| 4.8 | Maintenance Programme | 10 |
| 5.0 | Proposed activities | 11 |
| 5.1 | Proposed installation activities..... | 11 |
| 5.1.1 | Transport of waste to and from the site..... | 11 |
| 5.1.2 | Storage and processing of waste | 11 |
| 5.1.3 | Machinery | 14 |
| 5.2 | Proposed techniques and measures to prevent and reduce waste and emissions of substances and heat | 15 |
| 5.3 | Flow diagram summarising proposed additional activities | 16 |
| 5.4 | Comparison of proposed activities with relevant Best Available Techniques (BAT)16 | |
| 5.5 | Outline of main alternatives considered | 16 |
| 5.6 | Raw materials..... | 16 |
| 5.7 | Ozone depleting substances and fluorinated greenhouse gases | 17 |
| 6.0 | Maintenance | 18 |
| 7.0 | Energy and water | 19 |
| 7.1 | Energy | 19 |
| 7.2 | Basic measures for improvement of energy efficiency | 19 |

7.3 Water 19

8.0 Risk assessment 20

9.0 Training..... 21

10.0 Cessation..... 22

11.0 Emissions to groundwater..... 23

12.0 Rainwater 24

13.0 Emissions to air 25

14.0 Emissions to land..... 27

15.0 Noise..... 28

16.0 Monitoring 29

17.0 Impact on the Environment 31

 17.1 Environmental effects..... 31

 17.2 Effects on other sites 33

18.0 Expenditure plan 34

 18.1 Monitoring of emissions 34

 18.2 Clearing installation 34

 18.3 Remedial action in the event of the failure of pollution control systems 34

Appendix I 35

Appendix II 36

Appendix III 37

Appendix IV 38

Appendix V 39

Appendix VI 40

Appendix VII 41

Appendix VIII 42

Appendix IX 43

Appendix X 44

Appendix XI 45

Table of Figures

| | |
|---|----------|
| Figure 1: Site plan showing existing site (original IPPC permit) and proposed extension | 7 |
| Figure 2: Location and nature of major site features and activities of the proposed extension..... | 8 |
| Figure 3: Machinery (location and nature of activities) and potential sources of emissions as part of the proposed extension | 9 |

Table of Tables

| | |
|---|-----------|
| Table 1: Storage, processing and shredding of tobacco..... | 11 |
| Table 2: Storage, processing, shredding and baling of textiles | 12 |
| Table 3: Storage, processing, shredding and baling of paper and cardboard..... | 12 |
| Table 4: Storage, processing, shredding and baling of plastic and rubber (waste tyres) | 12 |
| Table 5: Storage, processing, shredding and baling of wood | 12 |
| Table 6: Storage and processing of Waste Electrical and Electronic Equipment (WEEE)..... | 13 |
| Table 7: Storage, processing, shredding and baling of ferrous metals..... | 13 |
| Table 8: Storage, processing, shredding and baling of non-ferrous metals..... | 13 |
| Table 9: Storage, processing and shredding of mattresses | 13 |
| Table 10: Storage of batteries..... | 14 |
| Table 11: Storage and processing of waste creams, liquid and powder soap, shampoos and toothpastes | 14 |
| Table 12: Storage of printing toners..... | 14 |
| Table 13: Use of chemical raw materials | 16 |
| Table 14: Proposed maintenance programme for the machinery in the site extension | 18 |
| Table 15: Air emissions from on-site equipment | 25 |
| Table 16: Monitoring of channelled emissions to air | 30 |
| Table 17: Criteria for the impact significance | 31 |
| Table 18: Summary of environmental impacts | 32 |

1.0 Introduction

This report provides information on the proposed activities to be undertaken in the extension of the Metalco Ltd. waste management facility (PA 01030/18). The objective of this report is to apply for a variation to their existing Integrated Pollution Prevention and Control (IPPC) Permit, as per IP 0002/13/A. Some minor amendments to the activities outlined in the aforementioned IPPC have also been described.

The requirement for an IPPC permit stems from the activities carried out on site which fall under Categories of activities listed in Schedule I of LN 10 of 2013, namely:

- » 5.3 (b)(iv) Recovery, or a mix of recovery and disposal, of non-hazardous waste with a capacity exceeding 75 tonnes per day involving treatment in shredders of metal waste, including waste electrical and electronic equipment and end-of-life vehicles and their components; and
- » 5.5 Temporary storage of hazardous waste not covered under point 5.4 pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 with a total capacity exceeding 50 tonnes, excluding temporary storage, pending collection, on the site where the waste is generated.

Other waste management activities are also carried out on site, and further details are presented in this report.

This report aims to provide the following details as pertinent to Part C of the IPPC Application:

| Section in IPPC Permit Application (Form C) | Reference section in this report |
|--|----------------------------------|
| C1.2 Non-technical description | 2.0 |
| C1.4.1 Site report | 3.1 |
| C1.4.2 Map showing location of installation | 3.0 |
| C1.4.3 Site plans showing location and nature of activities proposed on site | 3.3 |
| C2.1 Environmental Management System | 4.0 |
| C2.2.1 Proposed installation activities | 5.1 |
| C2.2.2 Proposed techniques to reduce waste and emissions | 5.2 |
| C2.2.3 Flow diagram of installation activities | 5.3 |
| C2.2.4 Comparison of proposed activities with BAT | 5.4 |
| C2.2.5 Main alternatives considered | 5.5 |
| C2.3 Raw materials | 5.6 |
| C2.4 Ozone depleting substances and fluorinated greenhouse gases | 5.7 |
| C2.5 Maintenance | 6.0 |
| C2.6 Energy | 7.1, 7.2 |
| C2.7 Water | 7.3 |
| C2.8 Risk Assessment | 8.0 |
| C2.9 Training | 9.0 |
| C2.10 Cessation | 10.0 |
| C3.1.1 Waste characterisation and quantification | 5.1, 5.2 |
| C3.1.2 Proposed measures for waste management, storage and | 5.1, 5.2 |

| Section in IPPC Permit Application (Form C) | Reference section in this report |
|--|---|
| handling | |
| C3.1.3 Description of how each waste stream is prepared for reuse, recycling, recovery or disposal | 5.1, 5.2, 5.3 |
| C3.2 Emissions to groundwater | 11.0 |
| C3.3.2 Installation of cesspit | 7.3 |
| C3.5 Rainwater | 12.0, 12.0 |
| C3.6 Emissions to air | 13.0 |
| C3.8 Emissions to land | 14.0 |
| C3.9 Noise | 15.0 |
| C3.10 Monitoring | 16.0 |
| C3.11 Emissions and waste summary | 5.2 |
| C4 Impact on the environment | 17.0 |
| C9 Expenditure plan | 18.0 |

2.0 *Non-technical description*

Metalco Ltd. operates a waste management facility which handles a variety of waste streams in the premises located in the outskirts of Luqa, Malta. The site qualifies for an IPPC permit due to the (i) treatment in shredders during the recovery of non-hazardous metal waste with a capacity exceeding 75 tonnes per day, and (ii) the temporary storage of hazardous waste that is expected to exceed the 50 tonnes capacity threshold. The metal to be shredded involves mainly non-ferrous metals, including waste electrical and electronic equipment (WEEE). The hazardous waste storage will consist of WEEE, liquid and powder soaps, creams, toothpastes and similar organic products, and spent batteries.

Some materials which are currently handled on site are covered by the existing IPPC permit IP 0002/13/A (Appendix I). These activities are the storage and/or processing of:

- » Sensitive consignments such as counterfeit items including cigarettes, clothes, liquids and powder soaps, creams and toothpastes;
- » Out-dated liquids and powder soaps, creams and toothpastes;
- » Bulky waste, namely mattresses;
- » End-of-life tyres;
- » WEEE including PC boards, hard drives, power supplies, wires and other components;
- » Ferrous and non-ferrous waste metals;
- » Clothes, textiles and waste from processed textile fibres;
- » Packaging waste, namely plastic, paper and cardboard;
- » Wood; and
- » Spent batteries.

Further details on the type of storage and/or processing of the materials listed above are included in the original IPPC permit application report. An extension of the site is being proposed towards the northwest of the site, which will be used solely for car parking purposes. Furthermore, the quarry included in the site perimeter of the original application but in which no activity was being done will be backfilled in accordance with PA 01030/18 (Appendix III). As per the requirements of the IPPC regulations (S.L.549.77), a variation to the existing permit is being submitted. This report hereby presents the descriptions of the additional activities to be carried out as part of the expansion of the facility.

This variation to IPPC application covers the following additional activities:

1. Extension of the site boundary towards the northwest of the existing site;
2. Car parking activities in the northern extended area;
3. Backfilling activity to be undertaken as part of PA 01030/18;
4. Operation of new ZATO shredder and an additional generator to supply the new shredder;
5. Movement of previous temporary offices to permanent building in accordance with PA 03146/13;
6. Shifting of scrap material storage, baler, shredder and conveyor system to area near the permanent offices;

7. Increase in storage and processing volumes of the materials which are already covered by the original IPPC permit; and
8. Update to waste carriers/brokers which carry the material to and from the site.

3.0 Site maps and reports

3.1 Site history and uses

The waste management facility is located in the outskirts of Luqa, close to Marsa and operates at the address 48, Scrap Lane, Valletta Road, Luqa LQA 1764 as shown in Section 0. It has an area of approximately 5,070m² and forms part of a larger area of 18,100m² of land. The site plan of the existing site is included in the original permit application, while a drawing of the existing site and the proposed extension can be found in Section 0.

The facility was established by Anthony Cremona in the early 1940s for the recycling of animal hides, glass and metals, which were subsequently exported to Italy. At that time, the company's name was Malta Scrap Iron and Metal Company. Following Antonio Cremona's death in 1963, his wife Lorenza included her brother Joseph Fenech as a partner in the firm and Fenech & Cremona was established. The site has been in operation as Metalco Ltd since September 1987, as an offshoot of Fenech & Cremona.

Today, the company specialises in the management of various types of waste including ferrous and non-ferrous metal scrap, WEEE, textiles, mattresses, packaging waste, tyres, wood, toners, batteries, and the shredding of confidential and counterfeit products. The proposed changes will include the increase in volumes of the aforementioned materials, along with introducing additional machinery.

The site layout of the existing facility is described in the original permit application. The existing perimeter will be extended due to the proposed backfilling activities (PA 01030/18) and the reclamation of the applicant's land which was previously being leased to DDE Attard Ltd. This land encompasses area beyond the northwest border of the site, which is presently undeveloped. No permanent features will be constructed on this land. Instead, this land will provide for parking of the employees' vehicles.

The Metalco waste management facility is divided into various storage and processing areas. The storage areas are further subdivided into "before processing", "after processing" and "before and after processing". The storage and processing areas will be segregated according to the various waste streams, to limit cross-contamination as much as possible. Throughout the site, a number of areas are designated for scrap material storage since the types of material stored in these areas will vary depending on the incoming waste streams. Nevertheless, the processed materials stored in the scrap material storage areas will still be appropriately segregated into the various waste streams.

The layout of the facility will remain more or less as described in the original IPPC application, save for the introduction of the new machinery. To the east of the existing building are the main offices (as approved by PA 03146/13), a warehouse, storage of scrap material, a shredder and a baler. Additionally, the northwest extended area will be reserved to provide parking to Metalco employees.

Storage of plastic, cardboard, paper and textiles will be carried out at the centre of the site in the existing building, as per original IPPC application.

As per the site plans in the original IPPC application, a disused quarry is located at the northeast border of the site. Backfilling of this quarry is proposed as part of PA 1030/18, and the backfilling activities are covered by this variation to IPPC application. The ultimate use of this backfilled area is as yet unknown, and will be covered by a separate variation permit at a later stage.

Site layout plans of the existing site were included in the original permit application. These have been updated to include changes and the proposed extension, as shown in Section 3.3. No changes to the liquid management features are applicable, since no features will be included in the northwest extension or in the quarry during backfilling operations.

3.2 Site plan showing location of installation

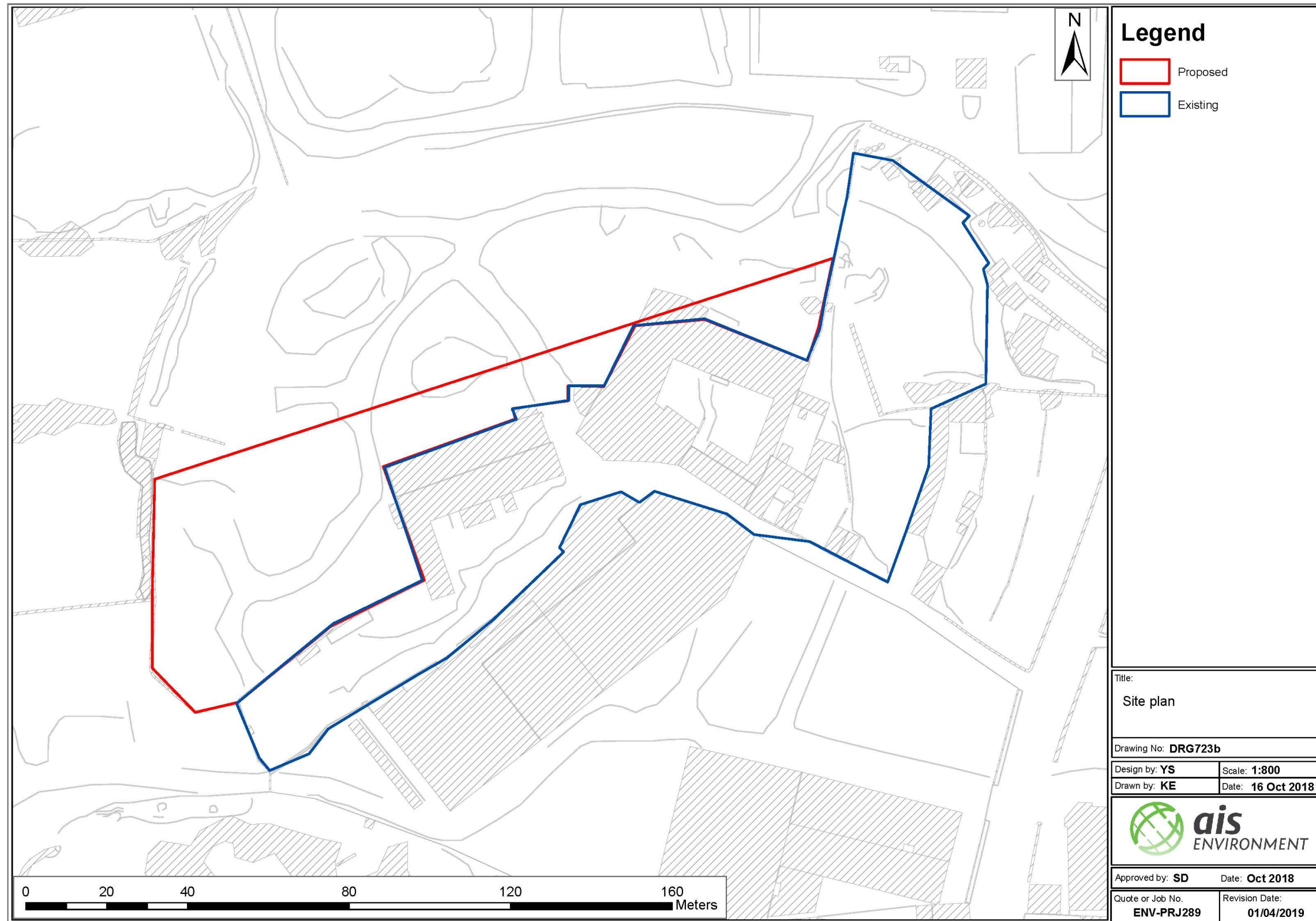


Figure 1: Site plan showing existing site (original IPPC permit) and proposed extension

3.3 Site layout plans showing nature of major site features and activities

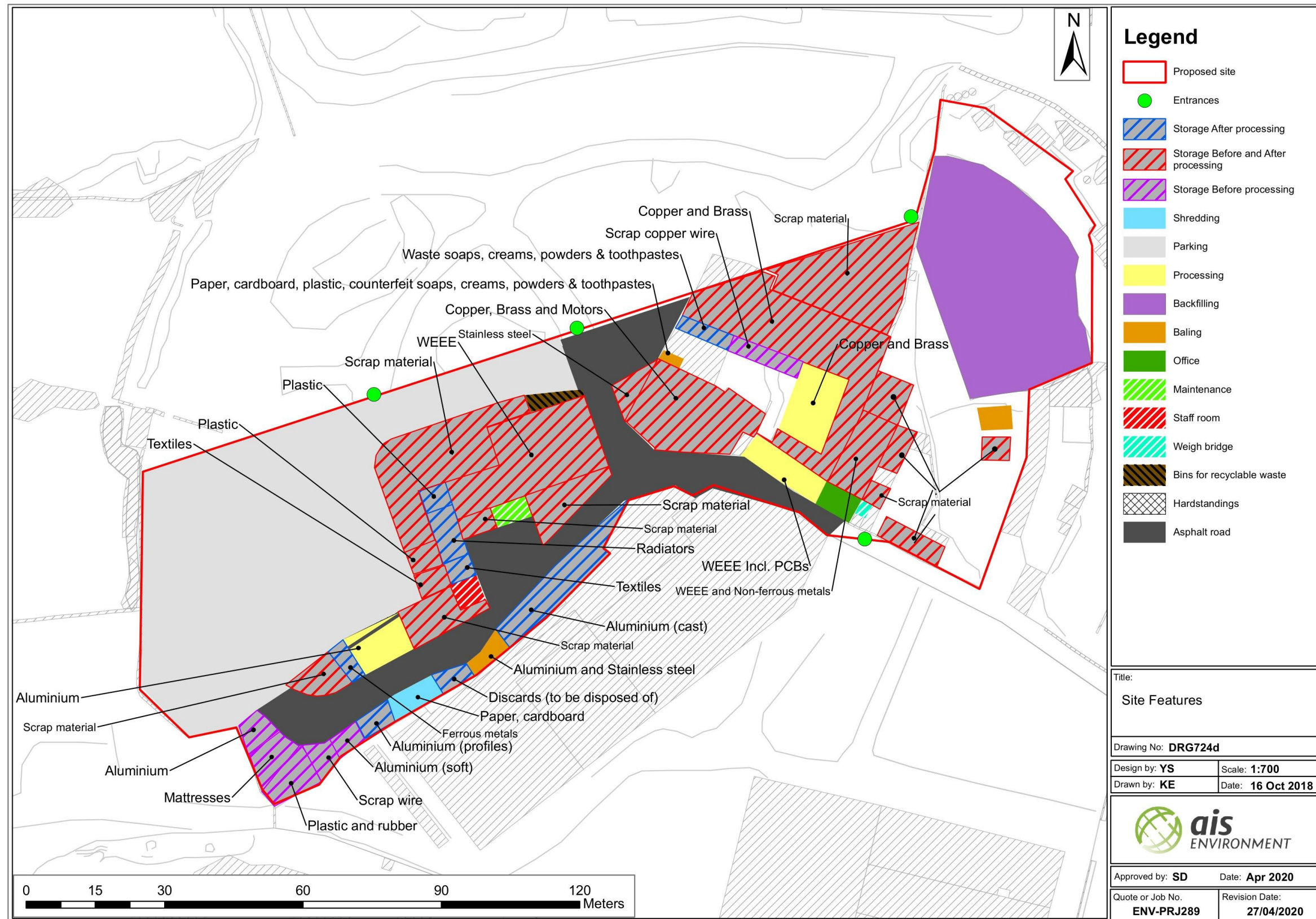


Figure 2: Location and nature of major site features and activities of the proposed extension

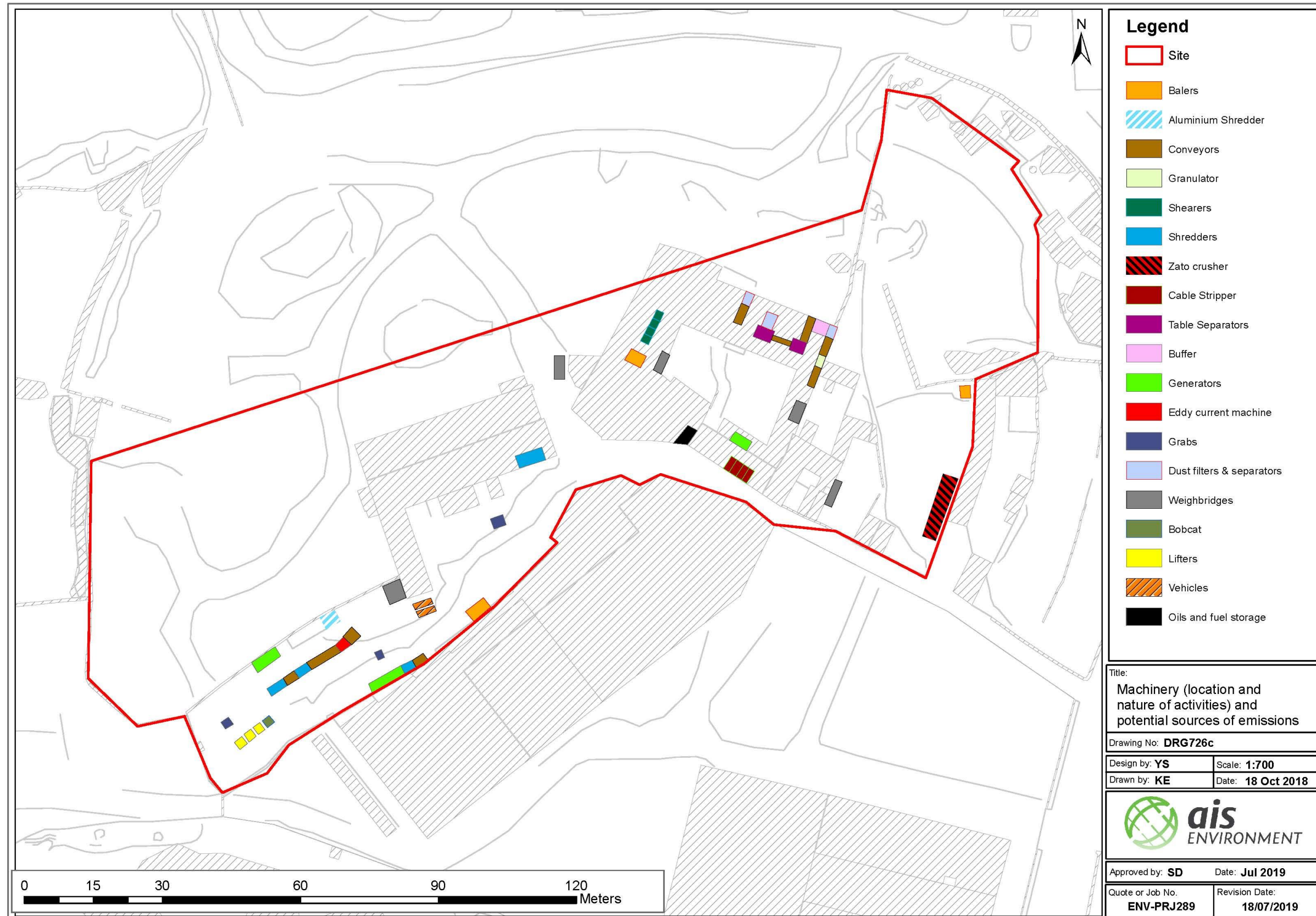


Figure 3: Machinery (location and nature of activities) and potential sources of emissions as part of the proposed extension

4.0 Environmental Management System

4.1 Management and Reporting Structure

No change/s to this structure are being proposed as part of this report. The details provided in the original IPPC application are valid.

4.2 Environmental Policy

No change/s to this policy are being proposed as part of this report. The details provided in the original IPPC application are valid.

4.3 Environmental Objectives and Targets

No change/s to these objectives and targets are being proposed as part of this report. The details provided in the original IPPC application are valid.

4.4 Environmental Management Programme (EMP)

No change/s to this programme are being proposed as part of this report. The details provided in the original IPPC application are valid.

4.5 Documentation

No change/s to the documentation are being proposed as part of this report. The details provided in the original IPPC application are valid.

4.6 Corrective Action

No change/s to this plan are being proposed as part of this report. The details provided in the original IPPC application are valid.

4.7 Awareness and Training

A training plan is provided in Section 8.0.

4.8 Maintenance Programme

A maintenance programme is provided in Section 6.0.

5.0 Proposed activities

5.1 Proposed installation activities

5.1.1 Transport of waste to and from the site

No change/s to these activities are being proposed as part of this report. The details provided in the original IPPC application are still valid.

5.1.2 Storage and processing of waste

The waste management facility is already authorised and permitted to carry out the following activities (in accordance with IP 0002/13/A):

- » Temporary storage, processing and shredding of counterfeit tobacco;
- » Temporary storage, processing, shredding and baling of textiles;
- » Temporary storage, processing, shredding and baling of separated paper and cardboard;
- » Sorting, storage, processing, shredding and baling of plastic and rubber (waste tyres);
- » Temporary storage, processing, shredding and baling of wood;
- » Temporary storage, dismantling, processing, shredding and baling of WEEE;
- » Storage, processing, shredding and baling of ferrous metals;
- » Storage, processing, shredding and baling of non-ferrous metals;
- » Temporary storage, processing and shredding of mattresses;
- » Temporary storage of batteries;
- » Temporary storage and processing of waste creams, liquid soaps, powders, shampoos and toothpaste;
- » Temporary storage of printing toners.

The processes of the various waste streams which are already permitted are outlined in the original IPPC permit application. Some alterations have been made, namely to the quantities of waste materials processed on site and the waste carriers/brokers. The alterations are presented in Table 1 to Table 12.

Table 1: Storage, processing and shredding of tobacco

| | |
|---|---------------------------------|
| Name of waste | Cigarettes and tobacco |
| Category of Waste (Inert, Non-Hazardous, Hazardous) | No changes |
| EWC code | No changes |
| Quantity (maximum site capacity) | 20 tonnes (including packaging) |
| Projected quantity of waste to be processed annually | No changes |
| Method of storage and containment | No changes |
| Method of processing and/or disposal | No changes |
| Waste carrier/ broker | GBR1707/10; GBR234/14 |

Table 2: Storage, processing, shredding and baling of textiles

| | |
|---|---|
| Name of waste | Clothes, textiles and waste from processed textile fibres |
| Category of Waste (Inert, Non-Hazardous, Hazardous) | No changes |
| EWC code | No changes |
| Quantity (maximum site capacity) | 30 tonnes |
| Projected quantity of waste to be processed annually | No changes |
| Method of storage and containment | No changes |
| Method of processing and/or disposal | No changes |
| Waste carrier/ broker | GBR1707/10; GBR234/14 |

Table 3: Storage, processing, shredding and baling of paper and cardboard

| | |
|---|-----------------------|
| Name of waste | Paper and cardboard |
| Category of Waste (Inert, Non-Hazardous, Hazardous) | No changes |
| EWC code | No changes |
| Quantity (maximum site capacity) | 25 tonnes |
| Projected quantity of waste to be processed annually | 3000 tonnes |
| Method of storage and containment | No changes |
| Method of processing and/or disposal | No changes |
| Waste carrier/ broker | GBR1707/10; GBR234/14 |

Table 4: Storage, processing, shredding and baling of plastic and rubber (waste tyres)

| | |
|---|-----------------------|
| Name of waste | Plastic and rubber |
| Category of Waste (Inert, Non-Hazardous, Hazardous) | No changes |
| EWC code | No changes |
| Quantity (maximum site capacity) | No changes |
| Projected quantity of waste to be processed annually | No changes |
| Method of storage and containment | No changes |
| Method of processing and/or disposal | No changes |
| Waste carrier/ broker | GBR1707/10; GBR234/14 |

Table 5: Storage, processing, shredding and baling of wood

| | |
|---|---|
| Name of waste | Wood |
| Category of Waste (Inert, Non-Hazardous, Hazardous) | No changes |
| EWC code | No changes |
| Quantity (maximum site capacity) | No changes |
| Projected quantity of waste to be processed annually | No changes |
| Method of storage and containment | No changes |
| Method of processing and/or disposal | No changes |
| Waste carrier/ broker | GBR1707/10; GBR1708/10; GBR233/14; GBR234/14 |

Table 6: Storage and processing of Waste Electrical and Electronic Equipment (WEEE)

| | |
|---|-----------------------|
| Name of waste | WEEE |
| Category of Waste (Inert, Non-Hazardous, Hazardous) | No changes |
| EWC code | No changes |
| Quantity (maximum site capacity) | 300 tonnes |
| Projected quantity of waste to be processed annually | 1000 tonnes |
| Method of storage and containment | No changes |
| Method of processing and/or disposal | No changes |
| Waste carrier/ broker | GBR1710/10; GBR847/13 |

Table 7: Storage, processing, shredding and baling of ferrous metals

| | |
|---|---|
| Name of waste | Ferrous metals |
| Category of Waste (Inert, Non-Hazardous, Hazardous) | No changes |
| EWC code | No changes |
| Quantity (maximum site capacity) | 2000-3000 tonnes |
| Projected quantity of waste to be processed annually | 3000-4000 tonnes |
| Method of storage and containment | No changes |
| Method of processing and/or disposal | No changes |
| Waste carrier/ broker | GBR1707/10; GBR1708/10; GBR233/14; GBR234/14 |

Table 8: Storage, processing, shredding and baling of non-ferrous metals

| | |
|---|---|
| Name of waste | Non-ferrous metals |
| Category of Waste (Inert, Non-Hazardous, Hazardous) | No changes |
| EWC code | No changes |
| Quantity (maximum site capacity) | 800 tonnes |
| Projected quantity of waste to be processed annually | 1,350 tonnes |
| Method of storage and containment | No changes |
| Method of processing and/or disposal | No changes |
| Waste carrier/ broker | GBR1707/10; GBR1708/10; GBR233/14; GBR234/14 |

Table 9: Storage, processing and shredding of mattresses

| | |
|---|-----------------------|
| Name of waste | Mattresses |
| Category of Waste (Inert, Non-Hazardous, Hazardous) | No changes |
| EWC code | No changes |
| Quantity (maximum site capacity) | No changes |
| Projected quantity of waste to be processed annually | No changes |
| Method of storage and containment | No changes |
| Method of processing and/or disposal | No changes |
| Waste carrier/ broker | GBR1708/10; GBR233/14 |

Table 10: Storage of batteries

| | |
|---|-----------------------|
| Name of waste | Batteries |
| Category of Waste (Inert, Non-Hazardous, Hazardous) | No changes |
| EWC code | No changes |
| Quantity (maximum site capacity) | No changes |
| Projected quantity of waste to be processed annually | No changes |
| Method of storage and containment | No changes |
| Method of processing and/or disposal | No changes |
| Waste carrier/ broker | GBR1710/10; GBR847/13 |

Table 11: Storage and processing of waste creams, liquid and powder soap, shampoos and toothpastes

| | |
|---|---|
| Name of waste | Creams, liquid soaps, powders, shampoos and toothpaste wastes |
| Category of Waste (Inert, Non-Hazardous, Hazardous) | No changes |
| EWC code | No changes |
| Quantity (maximum site capacity) | No changes |
| Projected quantity of waste to be processed annually | No changes |
| Method of storage and containment | No changes |
| Method of processing and/or disposal | No changes |
| Final destination of the wastes | No changes |
| Waste carrier/ broker | GBR782/14 |

Table 12: Storage of printing toners

| | |
|---|-----------------|
| Name of waste | Printing Toners |
| Category of Waste (Inert, Non-Hazardous, Hazardous) | No changes |
| EWC code | No changes |
| Quantity (maximum site capacity) | No changes |
| Projected quantity of waste to be processed annually | No changes |
| Method of storage and containment | No changes |
| Method of processing and/or disposal | No changes |
| Waste carrier/ broker | GBR782/14 |

5.1.3 Machinery

The machinery which is in place in the existing site is included in the original IPPC permit application. Some of the pre-existing machines have been moved to new locations, namely one of the balers, one of the shredders and a conveyor system. These are mapped in Figure 3.

Two new machines have been installed, which are an already purchased ZATO shredder and a generator to fuel the shredder (Figure 3). This machine has been installed to increase the processing rate and volumes of the materials covered by the original IPPC permit. The

aluminium shredder included in the original IPPC application will be relocated to the extended area.

An inspection of the existing machinery was carried out as part of the original IPPC permit application. The original inspection reports are attached as Appendix II.

The technical specifications of the proposed machines are attached as Appendix IV. The new generator is a Genset Cursor13 TE1 generator with a capacity of 295-330kW. The inspections of the ZATO shredder and generator are in progress and will be submitted following issue of the variation to IPPC permit.

5.2 Proposed techniques and measures to prevent and reduce waste and emissions of substances and heat

No change/s to the original techniques and measures are applicable. The various waste and reject materials generated from the existing site are listed in the original IPPC permit application.

The main sources of emission derived from the machinery used are outlined in Sections 13.0 and 15.0. Possible energy saving measures are listed in Section 7.2.

5.3 Flow diagram summarising proposed additional activities

No change/s to the processing are being proposed since no additional activities will be undertaken on site. The details provided in the original IPPC application are valid.

5.4 Comparison of proposed activities with relevant Best Available Techniques (BAT)

Two documents on the comparison of the processes at Metalco Ltd with the BREF for Waste Treatments Industries and with the BREF for Emissions from storage are applicable to the site, as included in Appendix V.

5.5 Outline of main alternatives considered

The only machines which will be added on site are the ZATO shredder and the generator. Since these machines were shown to comply with BAT requirements, no alternatives were considered.

No alternatives for the ZATO shredder were considered since this machine incorporates the latest technology, including:

- » High density mineral fibre insulation which significantly reduces noise pollution (70 dB at 7m distance);
- » The shredder cuts material into large pieces and therefore does not produce dust emissions;
- » A pre-shredder is included in the system, thus protecting against deflagrations;
- » The machine includes numerous safety features, including an acoustic signal in case uncrushable material finds its way into the machine; and
- » Efficient processing of material with practically full recovery of metals processed.

The shredder is therefore compliant with all relevant BAT requirements.

5.6 Raw materials

Being a waste management facility, the main raw materials processed on site are waste materials produced at other sites. Other raw materials are generally limited to chemicals such as fuel and oils, as indicated in Table 13. Material Safety Data Sheets (MSDS) of these raw materials were included in the original IPPC application. No changes are applicable.

Table 13: Use of chemical raw materials

| Chemical | Maximum amount stored at any one time | Annual consumption | Use | Method of Storage and Containment |
|---------------|---------------------------------------|--------------------|-----------|-----------------------------------|
| Diesel | No change | 48,000L | No change | No change |
| Hydraulic oil | No change | No change | No change | No change |
| Engine oil | No change | No change | No change | No change |

Site layout plans showing major site features and activities of the proposed extension are provided in Section 3.3.

Protective measures at the facility include a perimeter wall, front gate, two CCTV systems and alarms.

5.7 Ozone depleting substances and fluorinated greenhouse gases

No change/s to this section are applicable. The details provided in the original IPPC application are still valid.

6.0 Maintenance

The management is committed to keep detailed maintenance records of all machinery found at the facility. The maintenance programme of the machinery already in place on the site is included in the original IPPC application. No change/s to this programme are applicable. The details provided in the original IPPC application are valid.

Table 14 provides the proposed maintenance programme of the new equipment to be installed as part of the extension to the site.

Table 14: Proposed maintenance programme for the machinery in the site extension

| Check | Oil | Water | Greasing | Fuel | Filters | Blades |
|---------------|-------|-------|----------------|-------|----------------|---------|
| Generator | Daily | Daily | Every 6 months | Daily | Every 6 months | N/A |
| ZATO shredder | Daily | Daily | Daily | Daily | Weekly | Monthly |

7.0 Energy and water

7.1 Energy

No change in the daily consumption or use of energy or fuel is applicable. The details provided in the original IPPC application are valid.

7.2 Basic measures for improvement of energy efficiency

No changes to these basic energy efficiency measures are applicable. The details provided in the original IPPC application are valid.

7.3 Water

No changes to the water consumption are applicable. The details provided in the original IPPC application are valid. No new rainwater collection/treatment are applicable, since no rainwater will be collected in the parking area or during backfilling activities of the quarry.

8.0 Risk assessment

The Environmental Risk Assessment Report and the Risk Assessment Report of the original site still apply, as enclosed in Appendix VI.

9.0 Training

While the information provided in the original IPPC application is still valid, the staff will now also be trained on how to operate the ZATO shredder. The details provided in the original IPPC application and the BAT comparison documents are nevertheless valid.

10.0 Cessation

No change/s to these activities are being proposed as part of this report. The details provided in the original IPPC application are valid.

11.0 Emissions to groundwater

No change/s to these activities are being proposed as part of this report, since no emissions to groundwater are envisaged from the new activities.

12.0 Rainwater

No change/s to the features for rainwater capture located on the existing site are applicable. The details provided in the original IPPC application are valid.

13.0 Emissions to air

Some change/s to the atmospheric emissions included in the original IPPC application are envisaged, as outlined in Table 15.

Table 15: Air emissions from on-site equipment

| Source of emission | Content of emission | Quantity of substances emitted | Treatment/ abatement measures |
|---|--|---|---|
| Additional point source: » Generator | Products from the combustion of diesel including products of incomplete combustion | The additional daily consumption of 15L of diesel is expected to produce around 24m ³ of carbon dioxide. Water vapour, Nitrogen oxides, Sulphur oxides, hydrocarbons, soot and particulates are also produced in the process. | Regular maintenance or replacement of broke equipment with more efficient and less polluting technologies |
| Additional point source: » ZATO shredder | Particulate emissions during fine shredding | Cables, wires and tyres: 10-15% by weight released as particulates Aluminium profiles: around 2% by weight is released as particulates | Dust filters and separators are in place for the shredding equipment (Appendix VIII). An eddy current separator system is used during the shredding of aluminium profiles to separate the particulates produced to be collected and recovered for recycling. Other materials produce large pieces and therefore do not release atmospheric emissions. |

The technical specifications of the new machinery are provided hereunder:

Generator

- » Rated thermal input: 0.9 MW_{th}
- » Fuel type: diesel stored inside the generator
- » Average load in use: 80%
- » Estimated annual hours of operation: 1000 hours of operation

ZATO shredder

- » Rated thermal input: not applicable
- » Fuel type: powered by aforementioned generator
- » Average load in use: not applicable
- » Estimated annual hours of operation: 1000 hours of operation

14.0 Emissions to land

No change/s to the land emissions are envisaged from the activities of the proposed extension, since no waste storage/processing will be carried out in the extended area.

15.0 Noise

The main sources of noise at the facility are mainly caused by the operation of machinery. The additional machinery to be installed in the proposed extension are listed hereunder:

- » ZATO shredder; and
- » Generator.

This additional machinery is expected to increase the amount of noise generated at the site by a small degree. Some noise may originate from the backfilling operations, but these activities will be temporary. Nevertheless, no change/s are applicable to the conditions to limit the noise which were included in the original IPPC application. The details provided in the original IPPC application are valid.

16.0 Monitoring

Apart from the monitoring to be undertaken in line with the original application, BAT is to monitor for channelled atmospheric emissions. The emissions to be monitored are listed in Table 16.

Table 16: Monitoring of channelled emissions to air

| Substance | Standard(s) | Waste treatment process | Machines | Monitoring frequency ¹ |
|---|-------------------------------------|--|----------------------------------|-----------------------------------|
| Dioxin-like PCBs | EN 1948- 1, -2, and -4 ² | Mechanical treatment in shredders of metal waste | Shredders | Once every year |
| Dust | EN 13284-1 | Mechanical treatment of waste | Shredders, granulator and balers | Once every six months |
| Metals and metalloids except mercury (e.g. As, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Se, Tl, V) | EN 14385 | Mechanical treatment in shredders of metal waste | Shredders | Once every year |
| PCDD/F | EN 1948-1, -2 and -3 ² | Mechanical treatment in shredders of metal waste | Shredders | Once every year |
| TVOC | EN 12619 | Mechanical treatment in shredders of metal waste | Shredders | Once every six months |

¹ Monitoring frequencies may be reduced if the emission levels are proven to be sufficiently stable.

² Instead of EN 1948-1, sampling may also be carried out according to CEN/TS 1948-5.

17.0 Impact on the Environment

17.1 Environmental effects

Table 17 provides the definitions of the criteria used to qualify the environmental impacts of the activities carried out on site. Some additional environmental effects may arise from the proposed variations to the IPPC permit, as outlined in Table 18.

Table 17: Criteria for the impact significance

| Impact Significance | |
|-----------------------|---|
| Level | Definition |
| Insignificant | Negligible impact. |
| Minor Significance | Low order impact and therefore likely to have little effect on the environment. In the case of adverse impacts, mitigation is either easily achieved or little will be required, or both. |
| Moderate Significance | Impact on environment is not substantial in relation to other impacts that might take effect within the bounds of those that could occur. In the case of adverse impacts, mitigation is both feasible and fairly easily possible. |
| Major Significance | Of the highest order possible within the bounds of impacts on environment that could occur and resulting in a substantial change its condition. In the case of adverse impacts, there is little or no possible mitigation that could offset the impact. |

Table 18: Summary of environmental impacts

| Source of Impact | Impact | Sensitive Receptor | Description of Potential Negative Impact | Impact Significance | Mitigation Measures | Residual Impact |
|------------------|--------------------------|---------------------------|---|---------------------|--|-----------------|
| Machinery | Noise and dust emissions | Humans, flora, fauna, air | <ul style="list-style-type: none"> » Emissions of dust which may settle on surrounding flora and affect respiratory system in humans and fauna » Nuisance from increased noise levels | Minor | <ul style="list-style-type: none"> » Equipment maintained to optimum standards; » Equipment replaced when necessary; » Machinery operated at reasonable times, wherever possible; » Machinery and equipment sited as far as possible from neighbours; » Voices not raised unnecessarily; » Roads and tracks maintained to minimise noise produced; » Production of dust minimised at source; » Dust filters and separators for shredding and baling indoors. | Insignificant |
| Backfilling | Noise and dust emissions | Humans, flora, fauna, air | <ul style="list-style-type: none"> » Emissions of dust which may settle on surrounding flora and affect respiratory system in humans and fauna » Nuisance from increased noise levels | Minor | <ul style="list-style-type: none"> » Equipment used for backfilling maintained to optimum standards; » Equipment used for backfilling replaced when necessary; » Machinery used for backfilling operated at reasonable times, wherever possible; » Roads and tracks maintained to minimise noise produced; » Production of dust minimised at source by covering loose material. | Insignificant |

17.2 Effects on other sites

No change/s to the effects on other sites are applicable. The details provided in the original IPPC application are valid.

18.0 Expenditure plan

18.1 Monitoring of emissions

Estimated external costs for environmental assessments and monitoring is not expected to exceed €6,000 in total (increase in €1,000 from original IPPC application).

18.2 Clearing installation

No change/s to these activities are being proposed as part of this report. The details provided in the original IPPC application are valid.

18.3 Remedial action in the event of the failure of pollution control systems

No change/s to these activities are being proposed as part of this report. The details provided in the original IPPC application are valid.

Appendix I

Original IPPC (IP 0002/13/A)



Permit with introductory note

Industrial Emissions (Integrated Pollution Prevention and Control) Regulations, LN 10 of 2013.

**Metalco Ltd
48 Scrap Lane
Valletta Road
Luqa LQA 1764**

Permit number
IP 0002/13/A

Contents

| | |
|--|----|
| Introductory note | 2 |
| Permit | 4 |
| Conditions | 5 |
| 1 General..... | 5 |
| 2 Operating conditions | 11 |
| 3 Records | 24 |
| 4 Reporting..... | 25 |
| 5 Notifications..... | 25 |
| 6 Interpretation..... | 26 |
| Schedule 1 – Notification of abnormal emissions | 29 |
| Schedule 2 – Annual Environmental Report | 30 |
| Schedule 3 – List of wastes authorised to be accepted | 35 |
| Schedule 4 – Terms of reference for noise monitoring | 38 |
| Schedule 5 – Technical requirements for storage and dismantling of WEEE..... | 39 |
| Schedule 6 – Selective treatment for materials and components of WEEE..... | 40 |
| Schedule 7 – TORs for Compliance Audits..... | 41 |
| Schedule 8 – Site Plan..... | 45 |
| Schedule 9 – Air Emissions Plan..... | 46 |
| End of Permit | 46 |

certain information may be withheld from the public where it is commercially confidential or contrary to national security, this clause has not been applied to this application and the relevant documentation and permit.

Variations to the Permit

This Permit may be varied at any time in the future (by the Authority serving a Variation Notice on the Operator). If the Operator himself wants any of the Conditions of the Permit to be changed, a formal application must be submitted to the Competent Authority. The **Status Log** within the Introductory Note to any such Variation Notice will include summary details of this Permit, variations issued up to that point in time and state whether a consolidated version of the Permit has been issued.

Surrender of the Permit

Before this Permit can be wholly or partially surrendered, an Application to surrender the Permit has to be made to the Competent Authority by the Operator. For the application to be successful, the Operator must be able to demonstrate to the Competent Authority that there is no pollution risk and that no further steps are required to return the site to a satisfactory state.

Transfer of the Permit or part of the Permit

Before the Permit can be wholly or partially transferred to another person, an Application to transfer the Permit has to be made to the Competent Authority, by the existing and proposed holders jointly. A transfer will be allowed unless the Authority considers that the proposed holder will not be the person who will have control over the operation of the installation or will not comply with the conditions of the transferred Permit. If, however, the Permit authorises the carrying out of a specified waste management activity, the transfer will only be allowed if the proposed holder is also considered to be a technically competent person.

Status Log

| Detail | Date | Comment |
|--|--|---|
| <i>Application IP 0002/13</i> | <i>Received 05 July 2013</i> | <i>Not 'Duly Made'</i> |
| <i>Response to request for information</i> | <i>Request dated 31 January 2014</i> | <i>Response received on 18 March 2014 and 17 April 2014</i> |
| <i>Response to request for information</i> | <i>Request dated 30 June 2014</i> | <i>Response received on 7 August 2014</i> |
| <i>Response to request for information</i> | <i>Request dated 19 September 2014</i> | <i>Response received on 21 October 2014</i> |
| <i>Response to request for information</i> | <i>Request dated 20 November 2014</i> | <i>Response received on 23 December 2014</i> |
| <i>Response to request for information</i> | <i>Request dated 25 February 2015</i> | <i>Response received on 25 March 2015</i> |
| <i>Response to request for information</i> | <i>Request dated 01 April 2015</i> | <i>Response received on 30 April 2015</i> |
| <i>Response to request for information</i> | <i>Request dated 20 May 2015</i> | <i>Response received on 08 June 2015</i> |
| <i>Application 'duly made'</i> | <i>22 July 2015</i> | |
| <i>Public consultation</i> | <i>Commenced on 25 July 2015</i> | <i>Concluded on 25 August 2015</i> |
| <i>Permit determined</i> | <i>12 November, 2015</i> | <i>Permit issued: 29 March, 2016</i> |
| | | <i>Expires on: 29 March 2019</i> |

End of Introductory Note

Conditions

1 General

These permit conditions shall be read in conjunction with the IPPC Application received on 05 July 2013, as subsequently clarified and recorded in the status log above, which forms an integral part of these permit conditions.

1.1 Permitted Activities

1.1.1 The Operator is authorised to carry out the activities and the associated activities specified in Table 1.1.1.

| Table 1.1.1 | | |
|---|--|--|
| Activity listed in Schedule 1 of the Industrial Emissions (IPPC) Regulations / Associated Activity | Description of specified activity | Limits of specified activity |
| Sections 5.3(b)(iv) and 5.5: Processing and storage Waste Electrical and Electronic Equipment (hereinafter referred to as WEEE) | Receipt and processing of WEEE and related sorting, management and storage of separated components | From receipt of WEEE according to Schedule 3 to dispatch of separated components to authorised facilities either locally or abroad. Storage quantities shall not exceed the limits identified in the IPPC application. Storage of wastes accepted on site shall not exceed a period of 12 months on site if pending disposal and 36 months if pending recovery. |
| Storage of waste batteries | Storage of waste batteries in designated areas for a period of up to (but not exceeding) 12 months | From receipt of waste to dispatch of waste batteries to authorised facilities either locally or abroad. |
| Storage of waste toners | Storage of waste toners in designated areas for a period of up to (but not exceeding) 12 months | From receipt of waste to dispatch of waste batteries to authorised facilities either locally or abroad. |
| Processing of scrap metal | Receipt and processing of scrap metal | From receipt of waste metals according to Schedule 3 to dispatch of end product for authorised use or to authorised waste facility. The sale or reuse of material arising from the waste paper and cardboard processing is only allowed if End-of-Waste Criteria is achieved as per condition 2.4.3.7 |

designated areas for a period of up to (but not exceeding) 12 months

paper and cardboard to authorised facilities either locally or abroad.

| | | |
|---|---|---|
| Processing of waste plastic | Receipt and processing of waste plastic | From receipt of waste plastic according to Schedule 3 to dispatch of end product for authorised use or to authorised waste facility. The sale or reuse of material arising from the waste paper and cardboard processing is only allowed if End-of-Waste Criteria is achieved as per condition 2.4.3.7 |
| Storage of waste plastic | Storage of waste plastic in designated areas for a period of up to (but not exceeding) 12 months | From receipt of waste to dispatch of processed waste plastic to authorised facilities either locally or abroad. |
| Processing of non-hazardous waste wood | Receipt and processing of non-hazardous waste wood | From receipt of waste wood according to Schedule 3 to dispatch of end product for authorised use or to authorised waste facility. The sale or reuse of material arising from the waste wood processing is only allowed if End-of-Waste Criteria is achieved as per condition 2.4.3.7 |
| Storage of non-hazardous waste wood | Storage of non-hazardous waste wood in designated areas for a period of up to (but not exceeding) 12 months | From receipt of waste wood to dispatch of processed waste plastic to authorised facilities either locally or abroad. |
| Processing of counterfeit tobacco | Receipt and processing of counterfeit tobacco | From receipt of counterfeit tobacco according to Schedule 3 to dispatch of processed waste to authorised waste facility. |
| Storage of counterfeit tobacco | Storage of counterfeit tobacco in designated areas for a period of up to (but not exceeding) 12 months | From receipt of waste to dispatch of processed counterfeit tobacco to authorised waste facilities either locally or abroad. |
| Processing of waste creams, liquid soaps, powders, shampoo and toothpaste | Receipt and processing of waste creams, liquid soaps, powders, shampoo and toothpaste | From receipt of waste creams, liquid soaps, powders, shampoo and toothpaste according to Schedule 3 to dispatch of processed waste to authorised waste facility. |

1.4 Overarching Management Condition

- 1.4.1 Without prejudice to the other conditions of this Permit, the Operator shall implement and maintain an Environmental Management System (EMS), and an organisational structure, and allocate resources that are sufficient to achieve compliance with the limits and conditions of this Permit. An EMS can take the form of a standardised system (e.g. EN ISO 14001:1996 or EMAS) or a non-standardised ("customised") system, provided that is properly designed and implemented.
- 1.4.2 The Permit Holder shall submit (including as part of the EMS) the following reports annually as part of the Annual Environmental Report of the site, according to the timeframe specified in Condition 4.2:
- 1.4.2.1 Environmental Policy containing the installation's environmental objectives and targets;
 - 1.4.2.2 Environmental Management Programme report (for the reporting year);
 - 1.4.2.3 Environmental Management Programme proposal (for the following year).
 - 1.4.2.4 All waste reporting, submitted according to the templates valid to the specific waste stream and year
- 1.4.3 The Permitted Installation shall, subject to the conditions of this Permit, be managed, controlled and operated as described in the application and subsequent responses to requests for information submitted as per the Status Log above, or as otherwise previously agreed in writing by the Authority.

1.5 Improvement Programme

- 1.5.1 The Operator shall complete the improvements specified in Table 1.5.1 by the date specified in that table, and shall send written notification of the date of completion of each requirement to the Authority within 10 working days of the completion of each such requirement.

| Table 1.5.1: Improvement programme | | |
|---|--|--|
| Reference | Requirement | Date |
| 1 | Submission of a monitoring strategy and baseline report in line with European Commission guidance pursuant to Regulations 9(3) and 16(2) of the Industrial Emissions (IPPC) Regulations, and condition 2.9.4 | Methodology for Monitoring Strategy and Baseline Report: Within 3 months of issue of the permit Baseline Report: Within 9 months of issue of the permit |
| 2 | Registration of fuel tank with the Regulator for Energy and Water Services (REWS) for the storage of fuels (diesel). | Within 6 months of the date of issue of this permit |
| 3 | Obtaining development permit for fuel tank installed on site (PA 2823/15) | Within one year of the date of issue of this permit |
| 4 | Obtaining development permit for use of old reservoir as a liquid waste cesspit (PA 2907/15) | Within one year of the date of issue of this permit |
| 5 | Registration of cesspits with Superintendent of Public Health in accordance with Condition 2.2.3.1 | Within 6 months of the date of issue of this permit |

1.6 Operational Changes

- 1.6.1 The Operator shall seek the Authority's written agreement to any operational change as defined by LN 10 of 2013 and its amendments, by sending to the Authority: written notice of the details of the proposed change, including an assessment of its possible effects (including changes in emissions and waste production) on risks to the environment and public health from the Permitted Installation; any relevant supporting assessments and drawings; and the proposed implementation date.
- 1.6.2 Any such change shall not be implemented until agreed to in writing by the Authority. As from the agreed implementation date, the Operator shall operate the Permitted Installation in accordance with that change, and relevant provisions in the Application shall be deemed to be amended.
- 1.6.3 The Director of Environment Protection and any officials to whom this role is delegated are hereby authorised to make decisions on variations to this permit, with the exception of the following cases:
- a) variations which could lead to significant impact on human health or the environment;
 - b) any change in the nature or functioning or an extension of an installation where the change or extension in itself reaches the capacity thresholds set out in Schedule 1 of the Industrial Emissions (IPPC) Regulations;
 - c) variations covered by the Environmental Impact Assessment Regulations;
 - d) aspects of the operations specifically prohibited by this permit;
 - e) changes to emission limit values;
 - f) changes to fees;
 - g) renewal of the validity of this permit.

1.7 Off-site Conditions

- 1.7.1 The Permit holder shall ensure that no chemicals or waste escape to the environment including when transporting such materials offsite or onsite.
- 1.7.2 At all times during the year the Permit Holder and/or Technically Competent Person (TCP) are to ascertain that the roads leading to the facility are clean and free of mud or large debris. In the event that mud or large debris is observed on the road the Permit Holder and/or TCP is to take remedial action and ascertain that the roads are immediately cleaned.

2 Operating Conditions

2.1 In-Process Controls

- 2.1.1 The Permitted Installation shall, subject to the conditions of this Permit, be operated using the techniques and in the manner described in the IPPC application, or as otherwise agreed in writing by the Authority.

2.2 Emissions

2.2.1 Emissions to Air (excluding Odour, Noise or Vibration) from Specified Points

- 2.2.1.1 This Part 2.2.1 of this Permit shall not apply to releases of odour, noise or vibration.

- 2.2.1.14 For those activities, where it can be shown to the satisfaction of MEPA that the above venting requirements are not practical, sensible or necessary, stacks and vents shall be located and designed so as to minimise local nuisance.

2.2.2 Discharges to surface water

- 2.2.2.1 No discharges to surface water shall take place from the installation.

2.2.3 Discharges of Effluents to Cesspit

- 2.2.3.1 Any cesspits on site shall be registered with the Superintendent of Public Health prior to use to the satisfaction of the Superintendent of Public Health.
- 2.2.3.2 Cesspits utilized for the storage of process/industrial effluent shall be constructed according to the requirements of L.N. 106 of 2007, Activity 43 as follows:
- i. Cesspits are to be constructed in such a manner so as not to allow any leakages or spillages to the surrounding environment, and are designed in such a manner as to safely contain the type of waste that they are designated to store
 - ii. Cesspits are appropriately designed to avoid the accumulation of explosive, toxic or corrosive gasses
 - iii. The area surrounding the cesspit should be covered with impervious material and laid to fall towards the cesspit.
- 2.2.3.3 The Operator shall seek to obtain a Sewer Discharge Permit from the Water Services Corporation and shall supply all the information requested by the Water Services Corporation and take all the necessary actions as instructed by the Water Services Corporation and/or the Authority. The operator shall forward to the Authority a copy of any Sewer Discharge Permit issued by the Water Services Corporation within 10 days of its issue.
- 2.2.3.4 The Operator shall follow the conditions of the Sewer Discharge Permit, as may be updated from time to time by the Water Services Corporation and the provisions of the Sewer Discharge Control Regulations (LN139 of 2002 as amended by LN378 of 2005 and as may be amended from time to time).
- 2.2.3.5 No discharges of trade effluent into the sewer (whether from off-site or on-site discharge points) are allowed, unless specifically authorised by the Water Services Corporation. Prior to any discharge of trade effluent, the operator must provide evidence of authorisation from the Water Services Corporation to the Authority.
- 2.2.3.6 The Operator shall monitor for the parameters as per Water Services Corporation requirements. The Operator shall inform the Authority of any changes to the Sewer Discharge Permit of the installation or changes made by the Water Services Corporation to monitoring requirements or frequency of monitoring.
- 2.2.3.7 Rainwater shall be segregated from all process areas that are potentially contaminated with raw materials, intermediates and/or products.
- 2.2.3.8 Rainwater shall not be discharged into the sewer. The operator shall endeavour to collect rainwater in a suitable reservoir or cistern. As far as possible, rainwater shall be reused. However, harvested rain water and any second class water collected/stored in the reservoirs shall not to be used for human consumption and/or personal use. Water intended for human consumption and/or personal use shall be potable, from an approved source and in accordance with the provisions of Water Intended for Human Consumption Regulations, 2009 (L.N. 17 of 2009 as amended by L.N. 242 of 2009).

of 2001, LN 219 of 2001, LN 220 of 2001, LN 221 of 2001 and LN 227 of 2001) and any other directives regulating discharges into the aquatic environment.

2.2.6.4 The Operator shall undertake all necessary measures and precautions to prevent spillage of raw materials, intermediates, products, waste and any other materials.

2.2.6.5 Engineered site containment and drainage systems (including catchment pits, bunds and oil interceptor(s)/fuel separator(s)) shall be designed, constructed, inspected, validated and maintained; and shall be fully documented and recorded to be fit for purpose while meeting the following construction quality assurance standards. All areas are to:

- Be fully impermeable;
- Be kept free from cracks which could increase permeability;
- Be leak-proof and resistant to physical, mechanical and chemical stresses to which they may be subjected;
- Fall towards the drainage system to prevent pond formation.

Such systems shall be certified by an independent, warranted civil engineer or engineer as being leak-proof and resistant to physical, mechanical and chemical stresses to which they may be subjected. Testing of the oil interceptor(s)/fuel separator(s) shall be carried out as per EN 858 and shall amongst other things include an inspection of the interceptor for efficiency of operation. Such testing and certification shall be carried out upon commissioning and in the year prior to any renewal of this IPPC permit. The certification shall be submitted as part of the AER in the format specified in Schedule 2.

2.2.6.6 All dismantling operations and storage of hazardous waste and WEEE components shall be carried out in contained and roofed areas.

2.2.6.7 Any pipes, pumps, valves and flanges forming part of the fuel transfer system shall be certified to be leak-proof by an independent, warranted civil engineer or engineer upon commissioning and in the year prior to any renewal of this IPPC permit. The inspection report and any ensuing certification must be included in the AER in the format specified in Schedule 2.

2.2.6.8 All process and storage areas must be appropriately contained. The capacity of each bund shall be a minimum of 110% of the largest container within the bund or 25% of the total capacity of all the containers within the bund, whichever is the greater.

2.2.6.9 All fuel storage tanks shall be provided with an adequately designed bund system with an impermeable base and walls. The capacity of the bund shall be a minimum of 110% of the largest tank within the bund or 25% of the total capacity of all the tanks within the bund. Filling and off-take points shall be located within the bund.

2.2.6.10 Any accidental release of substances shall be duly treated prior to discharge into the cesspits, or disposed as described in the IPPC application if treatment does not enable compliance with emission limit values. Records shall be kept of such discharges, including the volume discharged and other parameters, as agreed with the Water Services Corporation, as per the Sewer Discharge Permit.

2.2.6.11 The drainage system must be sealed so that it does not leak and is capable of collecting and containing runoff and other liquids draining from the impermeable pavement. Runoff from the drainage system is to pass through an oil-water interceptor.

2.2.6.12 All oil interceptor(s)/fuel retention separator(s) shall be monitored and maintained to ensure efficient operation. A log of monitoring and waste removal from the interceptor shall be maintained on site and be available for inspection by the Authority.

- 2.2.9.4 Noise monitoring shall be carried out in the timeframes established in the Improvement Programme (Table 1.5.1), to ensure that the above limits are not exceeded. Noise monitoring shall also be carried out upon commissioning of any new equipment which in the opinion of the Authority has the potential to significantly increase noise emissions from the installation.
- 2.2.9.5 Based on the results of the noise monitoring, the operator may be requested to submit a proposal for an action plan aimed at reducing noise from those sources which have resulted in significantly high noise levels.
- 2.2.9.6 The proposal for an action plan is to be submitted and approved by the Authority, which reserves the right to request any additional measures as deemed necessary.
- 2.2.9.7 Based on the results of the noise monitoring, the Authority reserves the right to restrict the hours of operations.

2.3 Management and Technically Competent Person

- 2.3.1 A copy of this Permit and those parts of the application referred to in this Permit shall be available at the place of work, at all times, for reference by all staff carrying out work subject to the requirements of the Permit.
- 2.3.2 The site must be well secured to minimise the opportunity for unauthorised entry.
- 2.3.3 During non-operating hours the site should be firmly closed and totally inaccessible to third parties, both by vehicle and on foot.

Training

- 2.3.4 The Permitted Installation shall be supervised and controlled by staff who are suitably trained and fully conversant with the requirements of this Permit.
- 2.3.5 All staff shall be fully conversant with those aspects of the Permit conditions which are relevant to their duties and shall be provided with adequate professional technical development and training and written operating instructions to enable them to effectively carry out their duties.
- 2.3.6 The Operator shall maintain a record of the skills and training requirements for all staff whose tasks in relation to the Permitted Installation may have an impact on the environment and shall keep records of all relevant training.

Maintenance

- 2.3.7 All plant and equipment used in operating the Permitted Installation shall be maintained in good operating condition.
- 2.3.8 The Operator shall maintain a record of plant and equipment covered by condition 2.3.7, and for such plant and equipment:
- 2.3.8.1 a written or electronic maintenance programme; and
 - 2.3.8.2 records of its maintenance.

Incidents and Complaints

- 2.3.9 The Operator shall maintain and implement written procedures for:

structure can be utilised for the temporary storage of unpermitted waste. Such wastes may not be mixed with other wastes on site.

2.4.1.3 The Permit Holder shall maintain records of the weight of each waste consignment received and /or removed from the site, and such data is to be collected using a properly calibrated scale. Operator is to submit details of the scale used, together with its location and calibration details. Records of waste weighed prior to loading onto the vehicle from the point of collection may be accepted in lieu of on site weighing.

2.4.1.4 The Permit Holder shall ensure to issue a receipt for every consignment of wastes accepted and removed on Site indicating the date and time of the consignment and the weight of the waste received. Each receipt should indicate the site name and permit number, as well as bearing a unique sequential number. Where applicable, this also applies to any Recycling Certificates issued by the operator as part of any recycling scheme.

2.4.1.5 As part of the Annual Environmental Report for the installation, the Operator shall produce a report on the wastes accepted at, removed from and remaining in stock at the Permitted Installation over the previous calendar year, providing the information listed in Schedule 2 according to the approved template for reporting for that given year.

2.4.2 **Waste storage and handling**

2.4.2.1 The Operator shall use BAT in the design, maintenance and operation of all facilities for the storage and handling of waste on site such that there are no releases to water or land during normal operation and that emissions to air and risk of accidental release to water or land are minimised.

2.4.2.2 All wastes shall be stored within their designated and controlled storage area(s) prior to ultimate disposal or recovery.

2.4.2.3 All hazardous waste dismantling, processing and storage is to be carried out indoors in the buildings designated for that purpose.

2.4.2.4 All liquid hazardous wastes (including wastes containing liquids, e.g. batteries) shall be stored indoors or under cover in a bunded area. The capacity of each bund shall be a minimum of 110% of the largest container within the bund or 25% of the total capacity of all the containers within the bund, whichever is the greater.

2.4.2.5 The total amount of waste that can be stored at any given time cannot exceed the quantities indicated in the IPPC application and the permitted site boundary limits.

2.4.2.6 Storage of waste processed on site to be sent for recycling/recovery (e.g. waste metals) may be stored on site for a maximum of 36 months. In the case of wastes to be sent for disposal (e.g. any waste going to landfill or for incineration locally or abroad) may be stored on site for a maximum period of 12 months.

2.4.3 **Waste recovery or disposal**

2.4.3.1 The Operator shall be committed to reduce waste generation where possible.

2.4.3.2 Waste produced at the Permitted Installation shall be recycled, reused or recovered unless technically and/or economically impossible.

2.4.3.3 Disposal or recovery/recycling of wastes leaving the installation shall take place only at permitted sites, locally or abroad.

2.4.4 WEEE

- 2.4.4.1 The WEEE waste streams listed in Schedule 3 as per the individual EWC codes and individual WEEE type are the only WEEE waste streams that can be accepted and processed on site.
- 2.4.4.2 The Operator shall use, BAT in the setting up of systems to provide for the recovery of WEEE at the Permitted Installation.
- 2.4.4.3 The infrastructural set up of for the WEEE storage and treatment areas shall be carried out in compliance with the technical requirements set out in Schedule 8 of LN. 204 of 2014 Waste Management (Electrical and Electronic Equipment) Regulations, 2014. As a minimum all the listed requirements have to be implemented at the permitted facility. This can be found in Schedule 5 to this permit.
- 2.4.4.4 All wastes arising from dismantling of WEEE must be segregated in designated storage areas for each waste stream. These storage areas must be clearly labelled and no mixing of different hazardous wastes is permitted.
- 2.4.4.5 The indoor storage and processing areas indicated for WEEE may not be used for the storage or processing of any other wastes other than WEEE. As a minimum two suitable workstations for dismantling of approximately 6m² each must be set up, equipped with the necessary tools and proper segregation bins.
- 2.4.4.6 WEEE dismantling shall comply with Schedule 7 (Selective treatment of materials and components of waste electrical and electronic equipment) referred to regulation 8(2) of LN. 204 of 2014 Waste Management (Electrical and Electronic Equipment) Regulations, 2014. As a minimum the listed components have to be removed from and separately collected WEEE. This can be found in Schedule 6 to this permit.
- 2.4.4.7 Cathode Ray Tubes (CRTs) dismantled from monitors and televisions must remain whole throughout the dismantling process. Contingency procedures must be implemented in case of accidental damage whilst handling on site, or when damaged or broken CRTs are inadvertently brought on site.
- 2.4.4.8 Plastics removed from WEEE which contain brominated flame retardants must be stored separately from other plastics, and sent for suitable treatment. The operator is to ensure that plastics arising from WEEE processing are to be scanned for the presence of these substances. A methodology as to how this is to be implemented shall be maintained and submitted to the Authority

2.5 Energy Efficiency

- 2.5.1 As part of the Annual Environmental Report, the Operator shall produce a report on the energy consumed at the Permitted Installation over the previous calendar year, by the end of March of each year, providing the information listed in Schedule 2. The energy consumption of the waste recovery unit is also to be included in this report.
- 2.5.2 The Operator shall maintain and operate the Permitted Installation so as to secure energy efficiency, in particular by:
- Ensuring that the appropriate operating and maintenance systems are in place;
 - Ensuring that all the plant is adequately insulated to minimise energy loss or gain;
 - Ensuring that the type of lighting used is energy-efficient;
 - Ensuring that all appropriate containment methods (e.g. seals) are employed and maintained to minimise energy loss;

2.7.6 There shall be provided safe and permanent means of access to enable sampling/monitoring to be carried out in relation to the emission points already mentioned in this Permit; and safe means of access to other sampling/monitoring points when required by the Authority.

2.8 Transport

2.8.1 Independent of any Environment Management System, the Operator shall be responsible for making use of the services of an ADR (The European Agreement concerning the International Carriage of Dangerous Goods by Road) certified carrier for transport of chemicals and hazardous wastes on land.

2.8.2 The Operator shall make use of the services of a registered waste carrier for the transport of waste to and from the site in accordance with LN 106/2007.

2.8.3 Trucks leaving and entering the site must be properly contained so as to avoid possible escape of material.

2.9 Closure and Decommissioning

2.9.1 The Operator shall maintain and operate the Permitted Installation so as to prevent or minimise any pollution risk, including the generation of waste, on closure and decommissioning in particular by:

- Attention to the design of new plant or equipment;
- The maintenance of a record of any events which have, or might have, impacted on the condition of the site along with any further investigation or remediation work carried out; and
- The maintenance of an outline decommissioning plan as per conditions 2.9.2 and 2.9.3.

2.9.2 The Operator shall maintain an Outline Decommissioning Plan for the installation. This Outline Decommissioning Plan shall at least include the following information:

2.9.2.1 A draft waste management strategy which shall include:

- The identification and characterisation of sources, types of wastes (including equipment, tanks, fuels and by-products);
- Criteria for segregation of wastes;
- Proposed treatment, conditioning, transport, storage and disposal/recovery methods;
- Potential reuse/recycling of such wastes.

2.9.2.2 A qualitative assessment of the potential for contamination of land and groundwater pollution which might arise from the historical and current processes carried out at the installation.

2.9.3 The Operator shall carry out a full review of the outline Decommissioning Plan at least every 4 years.

2.9.4 The land and groundwater monitoring strategy referred to in Table 1.5.1 (reference 1) shall fulfil these requirements:

2.9.4.1 This monitoring proposal shall amongst other things include the location of the points for the sampling of land, information on the sampling methods, the handling of the samples, and the pre-treatment/extraction of the analytes (where applicable) and the methods used in order to analyse the samples.

2.9.4.2 The monitoring proposal shall include a list of parameters to be measured

2.9.4.3 Samples should be analysed to the relevant EN or EN ISO standards or equivalent.

- 2.9.8 The approved Decommissioning Plan shall be implemented within 12 months of final cessation or decommissioning of the Permitted activities or part thereof or according to a timeframe as may be agreed with the Authority.

2.10 Multiple Operator installations

- 2.10.1 This is not a multi-Operator installation.

3 Records

- 3.1 A daily operations log should be kept on site in which the following information shall be maintained as they arise:
- 3.1.1 Total amount of waste in kilos accepted on site;
 - 3.1.2 Total amount of waste in kilos removed from site for disposal or further treatment;
 - 3.1.3 Total amount of waste in kilos refused entry on site;
 - 3.1.4 Total amount in kilos of unaccepted material sent to the quarantine area and by which registered waste carrier it was transported;
 - 3.1.5 The name of each carrier used in the transport of the substances specified in conditions 2.8.1 and 2.8.2
 - 3.1.6 Any incidents that took place on site such as mechanical faults in the machinery or equipment used on site, any spills, fires, etc., and the remedial action taken;
 - 3.1.7 Names of visitors;
 - 3.1.8 Any other incidents that the Permit Holder deems important to record
- 3.2 The Operator shall ensure that all records required to be made by this Permit and any other records made by it in relation to the operation of the Permitted Installation shall:-
- 3.2.1 be made available for inspection by the Authority at any reasonable time;
 - 3.2.2 be supplied to the Authority on demand and without charge and in the format requested;
 - 3.2.3 be legible;
 - 3.2.4 be made as soon as reasonably practicable;
 - 3.2.5 indicate any amendments which have been made and shall include the original record wherever possible; and
 - 3.2.6 be retained at the Permitted Installation, or other location agreed by the Authority in writing, for a minimum period of 5 years from the date when the records were made, unless otherwise agreed in writing.

4 Reporting

- 4.1 All reports and written and/or oral notifications required by this Permit and notifications required by Regulation 7 of the Industrial Emissions (IPPC) Regulations shall be made and sent to the Authority using the contact details notified in writing to the Operator by the Authority.
- 4.2 The Operator shall submit to the Authority an Annual Environmental Report (AER) of the previous year to the Competent Authority by the end of March of each year. The AER shall contain all the information listed in Schedule 2 of this Permit and in the format specified therein, subject to the other conditions of this permit. The first report shall cover the first year (or part thereof) of operations.
- 4.3 The Operator shall, within 6 months of receipt of written notice from the Authority, submit to the Authority a report assessing whether all appropriate preventive measures continue to be taken against pollution, in particular through the application

- 5.5.1.1 any change in the Operator's trading name, registered name or registered office address;
 - 5.5.1.2 any change to particulars of the Operator's ultimate holding company (including details of an ultimate holding company where an Operator has become a subsidiary); and
 - 5.5.1.3 any steps taken with a view to the Operator going into administration, entering into a company voluntary arrangement or being wound up.
- 5.5.2 Where the Operator is a corporate body other than a registered company:
- 5.5.2.1 any change in the Operator's name or address; and
 - 5.5.2.2 any steps taken with a view to the dissolution of the Operator.
- 5.5.3 In any other case: -
- 5.5.3.1 the death of any of the named Operators (where the Operator consists of more than one named individual);
 - 5.5.3.2 any change in the Operator's name(s), address(es) or other contact details;
 - 5.5.3.3 any steps taken with a view to the Operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case them being in a partnership, dissolving the partnership.

6 Interpretation

- 6.1 In this Permit, the following expressions shall have the following meanings:-
- 6.1.1 "AER" means the Annual Environmental Report.
 - 6.1.2 "Application" means the application for this Permit, together with any response to a notice served under Regulation 5 to the Industrial Emissions (IPPC) Regulations and any operational change agreed under the conditions of this Permit.
 - 6.1.3 "Authorised Officer" means any officer of the Authority.
 - 6.1.4 "BAT" means best available techniques, which means the most effective and advanced stage of development of activities and their methods of operation which indicates the practical suitability of particular techniques to prevent and where that is not practicable to reduce emissions and the impact on the environment as a whole. For these purposes: "available techniques" means "those techniques which have been developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the cost and advantages, whether or not the techniques are used or produced in Malta, as long as they are reasonably accessible to the operator"; "best" means "in relation to techniques, the most effective in achieving a high general level of protection of the environment as a whole" and "techniques" "includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned."
 - 6.1.5 "Fugitive emission" means an emission to air or water (including sewer) from the Permitted Installation which is not controlled by an emission or background concentration limit under conditions 2.2.1, 2.2.2, 2.2.3, or 2.2.4 of this Permit.
 - 6.1.6 "Groundwater" means all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.
 - 6.1.7 "Industrial Emissions (IPPC) Regulations" means the Industrial Emissions (Integrated Pollution Prevention and Control) Regulations (LN 10 of 2013) and words and expressions defined in the Industrial Emissions (IPPC) Regulations shall have the same meanings when used in this Permit save

Schedule 1
Notification of abnormal emissions

This page outlines the information that the Operator must provide to satisfy conditions 5.1 and 5.2 of this Permit.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the Industrial Emissions (IPPC) Regulations.

Part A

| | |
|-------------------------------|--|
| Permit Number | |
| Name of Operator | |
| Location of Installation | |
| Location of the emission | |
| Time and date of the emission | |

| Substance(s) emitted | Media (e.g. air, groundwater) | Best estimate of the quantity or the rate of emission (include units) | Time between which the emission took place |
|----------------------|-------------------------------------|---|---|
| | | | |
| | | | |

| | |
|---|--|
| Measures taken, or intended to be taken, to stop the emission | |
|---|--|

Part B

| | |
|---|--|
| Any more accurate information on the matters for notification under Part A. | |
| Measures taken, or intended to be taken, to prevent a recurrence of the incident. | |
| Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment or harm which has been or may be caused by the emission. | |
| The dates of any unauthorised emissions from the installation in the preceding 24 months. | |

| | |
|----------------------------|--|
| Name ¹ | |
| I.D. Card No./Passport No. | |
| Post | |
| Signature | |
| Date | |

¹ authorised to sign on behalf of Operator

S2.3.2 Fuel consumption

| | Units | Sulphur Content ⁱ | Consumption | |
|-----------|----------------|------------------------------|---------------|--------------|
| | | | Previous Year | Current Year |
| Diesel | m ³ | | | |
| Biodiesel | m ³ | | | |

S2.3.3 List of Raw Materials

| Raw Material | Risk phrase | Annual Quantity Used (kg) |
|--------------|-------------|---------------------------|
| | | |
| | | |
| | | |

S2.4 Monitoring Data**S2.4.1 Emissions to air**

In accordance with Section 2.2.1 and 2.2.5, a monitoring survey shall be carried out on PM 10 and TSP. Following receipt and evaluation of the results, a timeframe for a monitoring programme shall be imposed by the Authority; the results of which shall be reported as part of the AER under this section for the years in which said monitoring takes place.

The parameters and templates for reporting of this data shall be communicated by the Authority following implementation and evaluation of Point 7 of the Improvement Programme (Table 1.5.1)

ⁱ Specify units (e.g. as percentage, or mg/kg)

S2.5 Total amount of waste accepted and processed on site

A summary record of the waste quantities accepted and removed from the site per month and for the whole calendar year will need to be submitted. Reporting templates for specific wastes which may have specific reporting requirements (e.g. WEEE, Packaging, Batteries) will also need to be reported using the correct template for any given reporting year.

The operator is to obtain the necessary templates from the Authority in sufficient time to submit waste reporting within the required timeframes as prescribed by the Authority.

S2.6 Testing of site containment and drainage systems, and fuel transfer system

| | Number on site | Date of last test | Testing due on (date) |
|-------------------|----------------|-------------------|-----------------------|
| Bunds | | | |
| Fuel separators | | | |
| Pipes | | | |
| Pumps | | | |
| Valves | | | |
| Others: (specify) | | | |

Additional documentation to be submitted if test was due during this reporting year:

Certification by warranted civil engineer/engineer Tick (✓)

S2.7 Incidents and Complaints

S2.7.1 Non-Compliance Incidents during Reporting Year

| Date of incident | Brief description of Incident | Cause | Corrective action |
|------------------|-------------------------------|-------|-------------------|
| | | | |
| | | | |
| | | | |
| | | | |

Total number of non-compliance incidents for previous year:¹
 Total number of non-compliance incidents for current reporting year:

S2.7.2 Complaints made by the public

| Date of Complaint | Description of complaint | Actions taken |
|-------------------|--------------------------|---------------|
| | | |
| | | |
| | | |
| | | |

Total number of complaints for previous year:¹

¹ "Previous year" data is not required in the first reporting year.

Schedule 3**List of wastes authorised to be accepted****By European Waste Code:****Incoming:**

| | |
|-----------|---|
| 02 03 04 | Tobacco unsuitable for consumption or processing |
| 03 01 05 | Sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04 |
| 04 02 22 | Waste from processed textile fibres |
| 07 02 03 | Waste Plastic (Fibre Optic Cables) |
| 07 06 01* | Aqueous washing liquids and mother liquors |
| 07 06 03* | Organic halogenated solvents, washing liquids and mother liquors |
| 07 06 04* | Other organic solvents, washing liquids and mother liquors |
| 07 06 08* | Other still bottoms and reaction residues |
| 07 06 09* | Halogenated filter cakes and spent absorbents |
| 07 06 10* | Other filter cakes and spent absorbents |
| 07 06 11* | Sludges from on-site effluent treatment containing dangerous substances |
| 07 06 12 | Sludges from on-site effluent treatment other than those mentioned in 07 06 11 |
| 08 03 17* | Waste printing toner containing dangerous substances |
| 08 03 18 | Waste printing toner containing dangerous substances other than those mentioned in 08 03 17* |
| 10 11 03 | Waste glass-based fibrous materials |
| 15 01 01 | Paper and packaging |
| 15 01 02 | Plastic Packaging |
| 15 01 03 | Wooden Packaging |
| 15 01 04 | Metallic Packaging |
| 15.01.09 | Textile packaging |
| 16 01 03 | End-of-life tyres |
| 16 01 17 | Ferrous metal |
| 16 01 18 | Non-ferrous metal |
| 16 01 19 | Plastic |
| 16 02 11* | Discarded equipment containing chlorofluorocarbons, HCFC, HFC |
| 16 02 13* | Discarded Equipment containing hazardous components other than those mentioned in section 2.2.1 |
| 16 02 15* | Hazardous components removed from discarded equipment |
| 16 02 16 | Components removed from discarded equipment other than those mentioned in 16 02 15* |
| 16 06 01* | Lead batteries |
| 16 06 02* | Ni-Cd batteries |
| 16 06 03* | Mercury-containing batteries |
| 16 06 04 | Alkaline batteries |
| 16 06 05 | Other batteries and accumulators |
| 16 03 05* | Organic wastes containing dangerous substances |
| 17 02 01 | Wood |
| 17 04 01 | Copper, bronze, brass |
| 17 04 02 | Aluminium |
| 17 04 03 | Lead |

- Large Printing Equipment
- Large Appliances which automatically deliver products and money
- Routers/modems
- Servers
- Electrical Pumps
- TV Decoders and Remote Controls
- Electrical Wires and Cables
- Small Equipment as found in Category 5 of Schedules 3 & 4 to L.N. 204 of 2014

For temporary storage only:

- Geysers (i.e. Water Heating Units)
- Equipment which automatically delivers cold products
- Heat pumps
- Radiators containing oil or other fluids other than water for temperature exchange
- LCD photo frames
- Luminaries
- Equipment reproducing sound or images
- Musical equipment (excluding large pipe organs)
- Knitting and weaving appliances
- Large coin slot machines
- Large Medical devices
- Large Monitoring and Control instruments
- Photovoltaic Panels
- GPS
- Pocket Calculators

Schedule 5

Technical requirements for storage and dismantling of WEEE

1. Sites for storage (including temporary storage) of WEEE prior to its treatment (without prejudice to the requirements of Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste):

- Impermeable surfaces for appropriate areas with the provision of spillage collection facilities and, where appropriate, decanters and cleanser-degreasers,
- Weatherproof covering for appropriate areas.

2. Sites for treatment of WEEE:

- scales to measure the weight of the treated waste,
- impermeable surfaces and waterproof covering for appropriate areas with the provision of spillage collection facilities and, where appropriate, decanters and cleanser-degreasers,
- Appropriate storage for disassembled spare parts,
- Appropriate containers for storage of batteries, PCBs/PCTs containing capacitors and other hazardous waste such as radioactive waste,
- Equipment for the treatment of water in compliance with health and environmental regulations.

Schedule 7

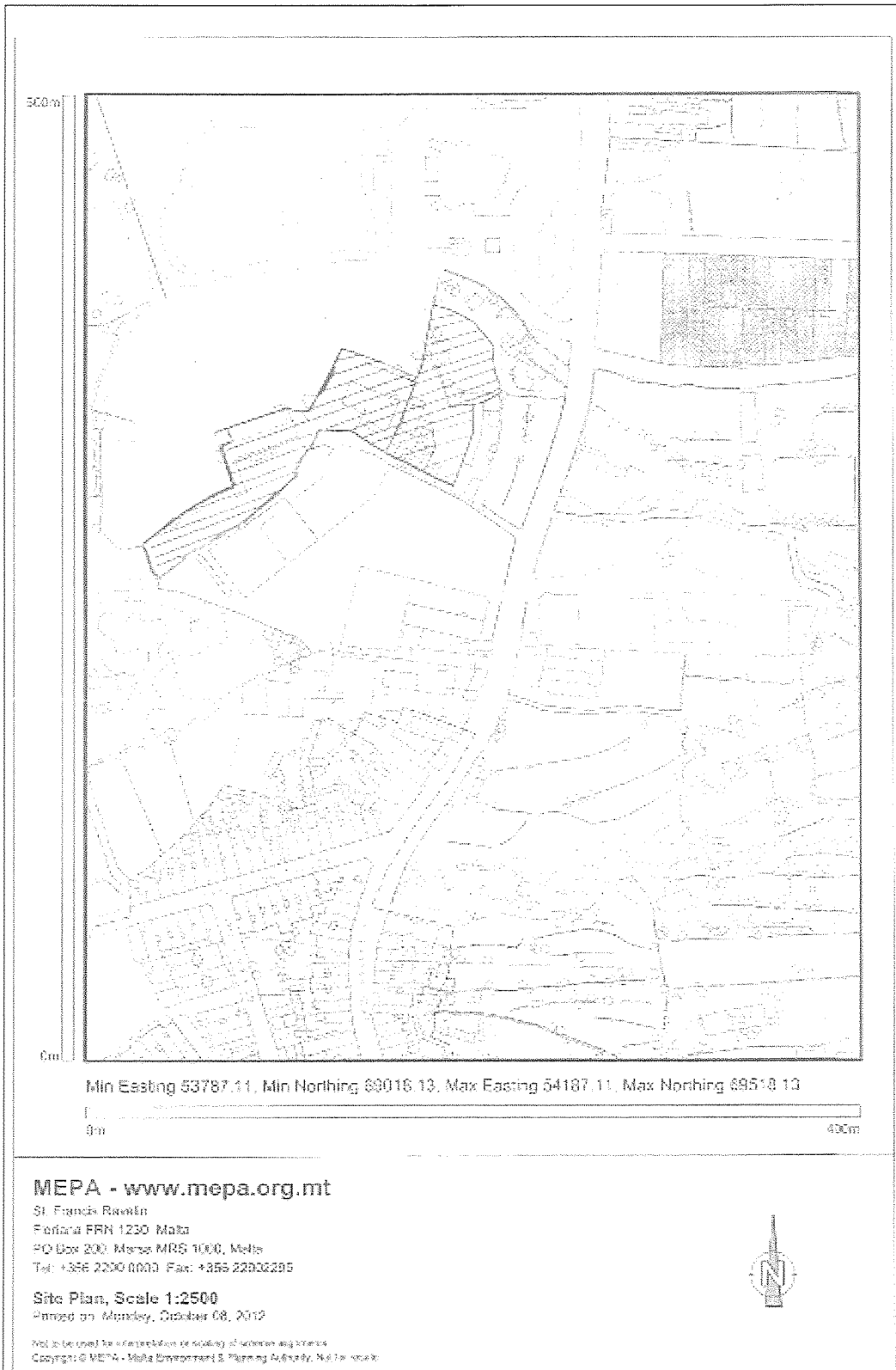
Terms of Reference for Compliance Audits related to Annual Reporting for Authorised Waste Facilities

- S3.1 The auditor shall be independent (i.e. an auditor who would be eligible for appointment as company auditor), certified, and approved by the Authority. The auditor should have access to in-house environmental expertise or otherwise appoint a consultant having environmental expertise to assist him.
- S3.2 The auditor would be required to certify all the information reported to the Authority by the Authorised Waste Facility as specified in the MEPA permit itself.
- S3.3 A sound auditing procedure for traceability, monitoring, and control should be in place for all the authorised waste managed on site in relation to the Waste Management permit or an Environmental permit.
- S3.4 The audit trail should cover all waste from the point of acceptance of waste into the facility to the end recovery or disposal facility (local or foreign).
- S3.5 Proper records and documentation should be kept where authorised waste are sent to duly authorised interim storage facilities, pending transfer to an authorised end disposal/recovery facilities. In such cases, proof is to be provided, as regards to that the authorised waste has been transferred to an authorised end disposal/recovery facility within a maximum of twelve (12) calendar months from the end of the annual reporting period.

The points overleaf shall be covered by the auditors in such audits, providing a detailed report of their findings. The Authority may reserve the right to request clarifications and further information from the auditors other than that provided in the audit report.

| | | | | |
|---|---|--|--|--|
| 5 | <p>Objective: To confirm that any movement of non-hazardous waste movements from the site being sent for treatment abroad are covered by the relevant Annex VII documentation of the Waste Shipments Regulation in cases of export</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the total no. of non-hazardous waste movements into and out of the site are covered by valid relevant documentation and/or records. Confirm also that the relevant EWC code has been used. In the case of waste broker usage, ensure that the waste brokers used are registered with MEPA as such. | | | |
| 6 | <p>Objective: To verify whether the quantities reported by the Waste Facility make reasonable sense</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the total amount of waste being handled at the facility and confirm that all waste entries (in and out of the site) reported are verified by relative documentation and/or records. | | | |
| 7 | <p>Objective: To ensure that the waste vehicles used by the authorised facility to transfer the waste to other permitted sites are registered with MEPA</p> <ul style="list-style-type: none"> Obtain a list of approved waste carriers from MEPA and confirm that the ones used by facility are registered with MEPA. | | | |
| 8 | <p>Objective: To ensure that, in cases where waste is transferred from the facility to other waste management facilities, locally or abroad, the waste management facilities used would either be approved by MEPA or the Competent Authority of the Country of Destination</p> <ul style="list-style-type: none"> Obtain a list of locally approved waste management facilities from MEPA and confirm that the ones used by the facility are approved and authorised by MEPA. Obtain a copy of the permits of any foreign authorised waste management facilities which have been utilised. An original copy of the permit and an approved translated version of the permit is to be presented to MEPA. | | | |
| 9 | <p>Objective: To ensure that the declared quantities of waste exported during the previous calendar year were actually received at the authorised facilities and declared to MEPA</p> <ul style="list-style-type: none"> Obtain all certificates received from recycling facilities and confirm that these have all been declared to MEPA prior to shipment Confirm arithmetical correctness of all reported data in this regard. | | | |

Schedule 8 Site Plan



Introductory note

This introductory note does not form part of the Permit

The following Permit is issued under Regulation 7 of the Industrial Emissions (Framework) Regulations, 2013 (LN 9 of 2013) ("the Industrial Emissions (Framework) Regulations") to operate an installation carrying out activities covered by the description in Sections 5.3(b)(iv) and 5.5 in Schedule 1 of the Industrial Emissions (IPPC) Regulations (LN 10 of 2013), to the extent authorised by the Permit, i.e.

“Recovery or a mix of recovery and disposal, of non-hazardous waste with a capacity exceeding 75 tonnes per day involving treatment in shredders of metal waste, including waste electrical and electronic equipment and end-of-life vehicles and their components.

Temporary storage of hazardous waste not covered under point 5.4 pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 with a total capacity exceeding 50 tonnes, excluding temporary storage, pending collection, on the site where the waste is generated.”

Aspects of the operation of the installation which are not specifically regulated by conditions in the Permit may also be subject to the condition implied by Regulation 8 of the Industrial Emissions (IPPC) Regulations, which require the Operator to use the best available techniques for preventing or, where that is not practicable, reducing emissions from the installation.

Techniques include both the technology used and the way in which the installation is designed, built, maintained, managed, operated and decommissioned.

In some sections, the Permit conditions require the Operator to use Best Available Techniques (BAT), in each of the aspects of the management of the installation, to prevent and where that is not practicable to reduce emissions. These conditions do not explain what is BAT.

A non-technical description of the installation is given in the application, but the main activity of the installation is as follows:

- **Operation of a waste recycling facility comprising of a shredding plant and facility for storage and dismantling of WEEE.**

Note that the Permit requires the submission of certain information to the Competent Authority (see sections 1, 2, 4 and 5). In addition, the Competent Authority has the power to seek further information at any time under regulation 11 of the Industrial Emissions (Framework) Regulations, provided that it acts reasonably.

Other IPPC Permits relating to this installation

| Permit holder | Permit Number | Date of Issue |
|-----------------------|---------------|---------------|
| <i>Not applicable</i> | | |

Superseded Licences/Authorisations/Consents relating to this installation

| Holder | Reference Number | Date of Issue |
|--------------------|--------------------|---------------|
| <i>Metalco Ltd</i> | <i>WM0001/08/H</i> | |

Public Registers

This IPPC Permit and application is available to the public through the Competent Authority in accordance with the requirements of the Industrial Emissions (IPPC) Regulations. Although

Permit

Industrial Emissions (Integrated Pollution Prevention and Control) Regulations (LN 10 of 2013)

Permit number

IP 0002/13/A

The Malta Environment and Planning Authority (hereinafter the Authority; the Competent Authority or MEPA) in exercise of its powers Regulation 7 of the Industrial Emissions (Framework) Regulations, 2013 (LN 9 of 2013) ("the Industrial Emissions (Framework) Regulations"), hereby authorises:

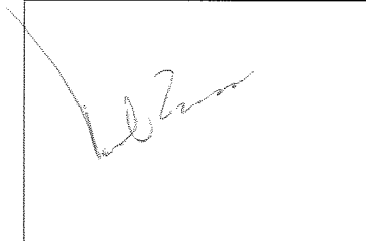
Metalco Ltd (hereinafter "the Operator" or "the Permit Holder"),
Of / Whose Registered Office (or principal place of business) is at:

10, Mill Street, Attard ATD 1365
(Company registration number: **C9037**)

to operate an installation at:

48, Scrap Lane, Valletta Road, Luqa LQA 1764

to the extent authorised by and subject to the conditions of this Permit.

| Signed | Date |
|---|----------|
|  | 29/03/16 |

Authorised to sign on behalf of the Competent Authority

Name in block letters:

VINCENT CASSAR

ID Number:

172247M

Perit Vincent Cassar
Chairman - MEPA

| | | |
|---|--|---|
| Storage of scrap metal | Storage of scrap metal in designated areas for a period of up to (but not exceeding) 36 months | From receipt of waste to dispatch of processed scrap metal to authorised facilities for recovery/recycling either locally or abroad. |
| Processing of waste tyres | Receipt and processing of waste tyres | From receipt of waste tyres according to Schedule 3 to dispatch of end product for authorised use or to authorised waste facility. The sale or reuse of material arising from the waste tyre processing is only permitted if End-of-Waste Criteria is achieved as per condition 2.4.3.7 |
| Storage of waste tyres | Storage of waste tyres in designated areas for a period of up to (but not exceeding) 12 months | From receipt of waste to dispatch of processed waste tyres to authorised facilities either locally or abroad. |
| Processing of waste textiles and mattresses | Receipt and processing of waste textiles and mattresses | From receipt of waste textiles and mattresses according to Schedule 3 to dispatch of end product for authorised use or to authorised waste facility. The sale or reuse of material arising from the waste textiles and mattresses processing is only allowed if End-of-Waste Criteria is achieved as per condition 2.4.3.7 |
| Storage of waste textiles and mattresses | Storage of waste textiles and mattresses in designated areas for a period of up to (but not exceeding) 12 months | From receipt of waste to dispatch of processed waste textiles and mattresses to authorised facilities either locally or abroad. |
| Processing of waste paper and cardboard | Receipt and processing of waste paper and cardboard | From receipt of waste paper and cardboard according to Schedule 3 to dispatch of end product for authorised use or to authorised waste facility. The sale or reuse of material arising from the waste paper and cardboard processing is only allowed if End-of-Waste Criteria is achieved as per condition 2.4.3.7 |
| Storage of waste paper and cardboard | Storage of waste paper and cardboard in | From receipt of waste to dispatch of processed waste |

| | | |
|--|--|---|
| Storage of waste creams, liquid soaps, powders, shampoo and toothpaste | Storage of waste creams, liquid soaps, powders, shampoo and toothpaste in designated areas for a period of up to (but not exceeding) 12 months | From receipt of waste to dispatch of processed waste creams, liquid soaps, powders, shampoo and toothpaste to authorised waste facilities either locally or abroad. |
| Fuel storage and dispensing | Storage and dispensing of diesel fuel | From receipt of diesel from suppliers authorised by the Regulator for Energy and Water Services (REWS) to dispensing to onsite machinery and vehicles. |

1.2 Site

- 1.2.1 The activities authorised under condition 1.1.1 shall not extend beyond the Site, as shown on the Site Plan in Schedule 8 to this Permit.
- 1.2.2 The site shall be clearly identified by a site identification board, which shall be replaced as soon as it is damaged or the information is no longer readable from a distance. The site identification board shall be located at the site entrance and contain the following information:
- The company name and address
 - List of authorised activities on site
 - 24 hour emergency mobile number
 - IPPC Permit Number (making it clear this site is permitted by the Authority)
 - Opening hours of the site.
- 1.2.3 Site security systems shall be provided at all times during the subsistence of this Permit, the objective of which shall be to prevent access by humans, and livestock, which is not authorised either by the Permit Holder or under legal powers of entry. These shall be installed, operated and maintained, and shall be fully documented and recorded.

1.3 Hours of Operation

- 1.3.1 The waste management operations authorised by this Permit shall only be carried out within the times specified below:
- | | |
|--|---------------|
| Monday to Friday (except public holidays): | 08:00 – 17:30 |
| Saturday: | 08:00 - 13:00 |
| Sunday: | Closed |
| Public Holidays: | Closed |
- 1.3.2 The Authority may authorise temporary operation beyond the days and times specified in condition 1.3.1 for the purposes of a noise study to be carried out in compliance with condition 2.2.9.4. Without prejudice to condition 2.2.9.7, further operation beyond the days and times stipulated in condition 1.3.1 may only be carried out if allowed by the Authority following confirmation through this noise study that the level of noise emitted by the operations at the installation would be compliant with condition 2.2.9.3.

| Table 1.5.1: Improvement programme | | |
|---|--|--|
| Reference | Requirement | Date |
| 6 | Implementation of a Noise Monitoring Survey in accordance with the method statement submitted as part of the IPPC application and in accordance with condition 2.2.9.4. | Survey to commence within 3 months of the date of issue of this permit Final report to be submitted to the Authority within one year of the date of issue of the permit. The final report should include recommendations for proposed frequency of such monitoring in the future. |
| 7 | Implementation of air monitoring programme in accordance with methodology submitted as part of the IPPC application and in accordance with Condition 2.2.1.5 | Air monitoring survey to commence within 3 months of the date of issue of this permit Report on air monitoring survey to be submitted to the Authority within one year of the date of issue of the permit. The final report should include recommendations for proposed frequency of such monitoring in the future. |
| 8 | Installation of mitigation for particle emissions to air arising from use of shredder on site | To be installed within 1 month of date of issue of permit |
| 9 | Provision of details (including 24hr contact number and CV) of delegate for the Technically Competent Person in accordance with Condition 2.3.13 | Within one month of the date of issue of this permit |
| 10 | To apply for and obtain a Sewer Discharge Permit in accordance with Condition 2.2.3.3 | Within one year of issue of the permit |
| 11 | Increasing stack height of Generator PS3 from 1.5m to the height required by Condition 2.2.1.7 | Within 6 months of issue of the permit |
| 12 | Submission of an Outline Decommissioning Plan, in accordance with Condition 2.9.2 | Within 1 year of issue of the permit |
| 13 | Submission of methodology for identification, separation and eventual final treatment of plastics containing brominated flame retardants, for review and approval by the Authority | Within 6 months of issue of permit |
| 14 | Reactivation of PA 2087/10 to sanction galvanized steel shed and obtain this development permit | Reactivation of application Within 1 month of issue of IPPC permit Obtaining development permit within 1 year of issue of IPPC permit |

2.2.1.2 Emissions to air from stationary sources shall only arise from the emission points specified in Table 2.2.1, as described in the IPPC application.

| Table 2.2.1 : Emission points to air | | |
|---|----------------------------|-----------------------------------|
| Emission point reference | Source | Location of emission point |
| 1 | Generator (Dawson-Keith 1) | As per Schedule 9 |
| 2 | Generator (Dawson Keith 2) | As per Schedule 9 |
| 3 | Generator (FG Wilson) | As per Schedule 9 |
| 4 | Shredder (Super Chopper) | As per Schedule 9 |
| 5 | Shredder (Heavy Rasper) | As per Schedule 9 |
| 6 | Shredder (Rasper) | As per Schedule 9 |

- 2.2.1.4 The Authority reserves the right to request emissions monitoring from emission points PS1-PS6 as deemed necessary.
- 2.2.1.5 Within the timeframes imposed in the Improvement Programme (Table 1.5.1), the operator shall monitor for PM₁₀ and total suspended particulates (TSP) for a period of four weeks during operation at dates and location/s to be agreed with the Authority, in accordance with the methodology submitted as part of the IPPC permit application, in order to assess the impact of the installation on the ambient air. Depending on the results of this monitoring, the Authority may restrict operations, require improvements to operations and/or require further monitoring.
- 2.2.1.6 The operator must apply and maintain suitable abatement measures to any equipment related to the physical alteration of the scrap metal (e.g. shredding machines, shearing machines, balers) to prevent escape of particulates and excessive noise created by the processes related to this equipment.
- 2.2.1.7 Extracted fumes and gases from PS3 shall vent through a stack extending at least 3 metres above roof level and above 3 metres of any habitable floor within a 25 metre radius and in a manner that optimises dispersion of the emission; in accordance with the provisions of LN 478 of 2010, Ambient Air Quality Regulations, 2010.
- 2.2.1.8 The Operator is to follow the latest procedure for authorisations/notifications to operate a petroleum-filling station (commercial site)/secondary storage facility of petroleum (non-LPG) for any fuel being stored, as applicable.
- 2.2.1.9 All non-road mobile machinery and diesel vehicles shall use automotive diesel which conforms to EN 590.
- 2.2.1.10 In the case of immovable machinery used for baling and shredding, only gasoil (diesel) with a maximum 0.1% sulphur content or biodiesel which conforms to MSA EN 14214 (including the 10 ppm sulphur limit) may be used. The use of biodiesel which conforms to MSA EN 14214 is preferable, as recommended by the Environmental Health Directorate.
- 2.2.1.11 Under abnormal operating conditions such as in the case of breakdown, the Operator shall reduce or close operations as soon as practical until normal operation can be restored.
- 2.2.1.12 Filters installed as abatement on shredders on site are to be replaced according to the frequency indicated by filter manufacturer, as part of the maintenance programme for the site. Filters to be disposed of shall be disposed of in accordance with the provisions of LN 184 of 2011, as amended.
- 2.2.1.13 The exhaust from general building ventilation (e.g. extractors or fans in walls or roofs) shall be vented in such a way as to avoid local nuisance.

2.2.3.9 The operator shall report discharges to the sewer as part of the Annual Environmental Report of the installation, in addition to any other reporting requirements set by the Water Services Corporation.

2.2.4 Discharges to groundwater

2.2.4.1 No emission from the Permitted Installation shall give rise to the introduction into groundwater of any substance included in the Regulations for the Protection of Groundwater against pollution and deterioration (LN 108 of 2009).

2.2.4.2 For substances other than those in LN 108 of 2009, the Operator shall not allow any discharges to groundwater from the Permitted Installation without prior consent of the Competent Authority.

2.2.4.3 The operations of the installation shall not hinder the achievement of good chemical and quantitative status of groundwaters as prescribed under the Water Policy Framework Regulations, LN 194 of 2004, and as may be amended from time to time.

2.2.5 Fugitive emissions of substances to air

2.2.5.1 The Operator shall use BAT so as to prevent or where that is not practicable to reduce fugitive emissions of substances to air from the Permitted Installation, in particular from the:

- process areas with particular reference to shredding
- storage areas, including solvent storage, fuel storage, raw materials storage and waste storage
- buildings
- pipes, valves and other transfer systems
- open surfaces

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.5.2 The Operator shall use BAT so as to prevent or where that is not practicable to reduce release of litter from the Permitted Installation provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.6 Fugitive emissions of substances to water and sewer

2.2.6.1 Subject to condition 2.2.6.2, the Operator shall use BAT so as to prevent or where that is not practicable to reduce fugitive emissions of substances to water (including to groundwater) and sewer from the Permitted Installation, in particular from:

- All structures under or over ground
- Surfacing
- Storage areas
- Bunded areas

2.2.6.2 The operations of the installation shall not hinder the achievement of good status for surface waters as required under the Water Policy Framework Regulations, LN 194 of 2004 (as amended).

2.2.6.3 There shall be no release to water that would cause a breach of an EQS (Environmental Quality Standard) established to implement the Dangerous Substances Directive 76/464/EEC (LN 213 of 2001) and daughter directives (LN 218

- 2.2.6.13 Oil interceptor(s)/fuel retention separator(s) shall be installed by an independent warranted architect or engineer as per EN 858.
- 2.2.6.14 The operations of the installation shall not hinder the achievement of good ecological status for surface waters as prescribed under the Water Policy Framework Regulations, LN 194 of 2004.

2.2.7 Odour

2.2.7.1 The Operator shall use BAT so as to prevent or where that is not practicable to reduce odorous emissions from the Permitted Installation, in particular by:

- limiting the use of odorous materials;
- restricting odorous activities;
- controlling the storage conditions of odorous materials;
- controlling processing parameters to minimise the generation of odour;
- optimising the performance of abatement systems;
- timely monitoring, inspection and maintenance;
- employing, where appropriate, an approved odour management plan;

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.7.2 There shall be no significant offensive odour, as perceived by an Authorised Officer of the Competent Authority, at sensitive locations.

2.2.8 Emissions to Land

2.2.8.1 No emission from the Permitted Installation shall be made to land.

2.2.9 Noise and Vibration

2.2.9.1 The Operator shall use BAT so as to prevent or where that is not practicable to reduce emissions of noise and vibration from the Permitted Installation, in particular by:

- 2.2.9.1.1 equipment maintenance, e.g. circulating pumps, extraction fans, compressors.
- 2.2.9.1.2 use and maintenance of appropriate attenuation, eg. silencers, barriers, enclosures;
- 2.2.9.1.3 appropriate timing and location of noisy activities and vehicle movements;
- 2.2.9.1.4 periodic checking of noise emissions, either qualitatively or quantitatively;
- 2.2.9.1.5 mounting any equipment or machinery which may cause substantial vibrations on rubber mountings or other specialized vibration reduction mountings in order to reduce vibration impacts; and
- 2.2.9.1.6 maintenance of building fabric.

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.9.2 Emergency generators/alarms/sirens/release valves shall only be tested between the hours of 10.00 and 17.00 Monday to Friday and not on any Public Holiday.

2.2.9.3 The level of noise emitted from the installation at all operational times shall not exceed the background noise level by more than 5dB.

- 2.3.9.1 taking prompt remedial action, investigating and reporting to the Competent Authority actual or potential non-compliance with operating procedures or emission limits and if such events occur;
 - 2.3.9.2 investigating incidents, (including any malfunction, breakdown or failure of plant, equipment or techniques, down time, any short-term and long-term remedial measures and near-misses) and prompt implementation of appropriate actions; and
 - 2.3.9.3 ensuring that detailed records are made of all such actions and investigations.
- 2.3.10 The Operator shall record and investigate complaints concerning the Permitted Installation's effects or alleged effects on the environment and public health. The record shall give the date and nature of complaint, time of complaint, name of complainant (if given), a summary of any investigation and the results of such investigation and any actions taken.
- 2.3.11 As part of the Annual Environmental Report, the Operator shall provide a summary record of incidents and complaints in the format specified in Schedule 2.

Attendance of Technically Competent Person(s)

- 2.3.12 Attendance of the technically competent person(s) at the Site shall be recorded.
- 2.3.13 For the whole operational hours permitted for the Site under this Permit, the Technically Competent Person/s or his/her delegate/s shall be physically in attendance at the Site.. The operator is to provide details as to how he/she intends to provide this coverage in order to take into account unavoidable absences due to vacation or sick leave. Details including Curriculum Vitae of the technically competent person/ and his/her/their delegate/s shall be provided to the Authority.
- 2.3.14 Where the Site has been notified to the Authority as being either non-operational or closed, the Technically Competent Person or his/her delegate shall be capable of attending the Site within one hour.

Changes in Technically competent Persons

- 2.3.15 Any changes/additions in technically competent management (Person/s) and the name of any incoming person together with evidence that such person has the required technical competence and 24-hour contact details shall be submitted to the Authority in writing within 5 working days of the change in management.
- 2.3.16 In the event of the death, dismissal, resignation, leave, or of extended sick leave of the Technically Competent Management of the Site, the Permit Holder shall immediately inform the Authority, and prove to the Authority that the Permit Holder is actively seeking a replacement.

2.4 Waste

2.4.1 Waste acceptance

- 2.4.1.1 The Permit Holder shall apply the precautionary principle to safeguard the environment whilst carrying out the permitted activities and shall immediately refuse the entry of waste that is suspected to be in breach of the conditions of this permit.
- 2.4.1.2 A quarantine area is to be designated within the site boundary to temporarily hold unpermitted waste that may enter the site. A non-leaking skip or similar contained

- 2.4.3.4 Should the operator wish to commence export of batteries to authorized facilities abroad directly; the operator must supply the Authority with full information related to recycling efficiency rates of the facility to which the waste is being exported in line with the requirements of Article 12(5) of Directive 2006/66/EC.
- 2.4.3.5 No incineration of waste or any other material is permitted on site.
- 2.4.3.6 The Operator shall keep up to date records of all incoming and outgoing wastes. Such a system of record keeping shall include records of:
- 2.4.3.6.1 quantities of waste;
 - 2.4.3.6.2 information on the date of acceptance/removal from site;
 - 2.4.3.6.3 European Waste Catalogue (EWC) code of the waste;
 - 2.4.3.6.4 Consignment note number, in the case of hazardous wastes;
 - 2.4.3.6.5 description of the waste;
 - 2.4.3.6.6 the mode of transport and the names of the agent and transporter of the waste, together with the Waste Carrier Registration Number (GBR Number) where applicable;
 - 2.4.3.6.7 information on where such wastes are deposited and the name of the person responsible for ultimate disposal or recovery;
 - 2.4.3.6.8 whether wastes are recovered or disposed, and if they are recovered, the details of this process;
 - 2.4.3.6.9 information on any treatment/s applied (before disposal/recovery).
- 2.4.3.7 Without prejudice to condition 2.4.3.2, disposal of wastes including rejects, expired products, and other wastes are to be managed in accordance with the legal obligations of the Waste Regulations 2011, as published by Legal Notice 184 of 2011 and as amended by L.N. 441 of 2011, or any statutory provisions or regulations amending or replacing them. Off-site disposal or recovery of wastes may only take place at a facility licensed for that purpose.
- 2.4.3.8 End-of-waste criteria must be met for any waste to be classified as a product. In such cases, the operator shall comply with relevant criteria set by legislation. For scrap metal, the criteria in Council Regulation 333/2011, as may be amended, shall apply. In the absence of any relevant legislation, the operator shall follow the procedure laid down in Regulation 6 of Legal Notice 184 of 2011.
- 2.4.3.9 Without prejudice to condition 2.4.3.2, movement of hazardous waste to and from authorised facilities shall be covered by a valid consignment permit obtainable from the Competent Authority. Each movement shall also be covered by a consignment note obtainable from the Authority.
- 2.4.3.10 Disposal certificates shall be kept on record and made available for inspection for a period of at least 5 years from date of their issue.
- 2.4.3.11 Without prejudice to condition 2.4.3.2, shipment of hazardous waste outside the Maltese Islands is to follow the obligations listed in the following regulations, as amended from time to time:
- 2.4.3.11.1 Regulation (EC) 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste;
 - 2.4.3.11.2 Commission Regulation (EC) N° 1379/2007 of 26 November 2007 amending Annexes IA, IB VII and VIII of Regulation (EC) N° 1013/2006 of the European Parliament and of the Council of Shipments of waste, for the purposes of taking account of technical progress and changes agreed under the Basel Convention; and
 - 2.4.3.11.3 Commission Regulation (EC) N° 1418/2007 of 29 November 2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) N° 1013/2006 of the European Parliament and of the Council to certain countries to which the OECD Decision on the control of transboundary movements of waste does not apply.

- Maintaining and implementing an energy efficiency plan which identifies energy-saving techniques that are applicable to the activities and their associated environmental benefit, and prioritises them.

2.6 Accident prevention and control

- 2.6.1 In the case of an accident, the Operator shall follow the Emergency Plan submitted as part of the IPPC application, as may be updated from time to time.
- 2.6.2 The plan shall be reviewed at least every 2 years or as soon as practicable after an accident, whichever is the earlier, and the Authority notified of the results of the review within 2 months of its completion.
- 2.6.3 The Operator shall maintain and implement all health and safety measures in compliance with Act XXVII of 2000; Occupational Health and Safety Authority Chapter 424 and all relevant subsidiary legislation, to the satisfaction of the Occupational Health and Safety Authority.
- 2.6.4 The Operator shall have sufficient employees trained to deal with any emergency that may arise, e.g. fire-fighting and first aid.
- 2.6.5 The Operator is to keep the Authority updated on any major changes in operations that may impact on the health and safety of the employees, to the satisfaction of the Occupational Health and Safety Authority.
- 2.6.6 The Operator is to make available Health and Safety documentation freely available, to the satisfaction of the Occupational Health and Safety Authority.

2.7 Monitoring

- 2.7.1 The Operator shall maintain and implement an emissions monitoring programme which ensures that emissions are monitored as specified in this Permit and the results of such monitoring shall be assessed. The programme shall ensure that monitoring is carried out under an appropriate range of operating conditions, and that measurements for the determination of concentrations of substances specified in this Permit shall be carried out representatively.
- 2.7.2 Sampling and analysis of all pollutants, as well as reference measurement methods to calibrate automated, continuous measurement systems shall be carried out as specified by the appropriate CEN standards. If CEN standards are not available, ISO standards, national or international standards, which will ensure the provision of data of an equivalent scientific quality, as agreed in writing with the Authority, shall apply.
- 2.7.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme in condition 2.7.1 of this Permit shall be from a certified or accredited laboratory or laboratory in the process of accreditation, as confirmed by the National Accreditation Body (NAB-Malta). As part of the Annual Environmental Report, the operator shall provide evidence of certification or accreditation of laboratories used for the emissions monitoring programme.
- 2.7.4 The Operator shall maintain records of all monitoring taken or carried out (this includes records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys) and any assessment or evaluation made on the basis of such data, for at least a period of 5 years. Such records may be requested at any time by the Authority.
- 2.7.5 The Operator shall provide the Authority with monitoring reports as indicated in Section 4 of this permit.

- 2.9.4.4 Samples shall be managedⁱ by a lab accredited (or in the process of accreditation, as confirmed by the National Accreditation Body (NAB-Malta) or equivalent) to at least EN ISO 17025:2005/Cor 1:2006 and preferably accredited for each and every analysis.
- 2.9.5 The Operator shall continue carrying out the periodic land and groundwater monitoring referred to in condition 2.9.4 as per timeframes approved by the Authority in the monitoring proposal. The results of such monitoring shall be included in the AER.
- 2.9.6 The Operator shall notify the Authority immediately upon a decision being taken to decommission all or part of the site, or planned cessation for a period greater than 6 months, of all or part of the permitted activities. The Authority may impose further requirements in the case of planned cessation for a period greater than 6 months.
- 2.9.7 One year before the planned decommissioning of all or part of the site, the operator shall submit for approval to the Authority a full Decommissioning Plan which shall at least include:
- 2.9.7.1 If required, following the baseline report carried out to fulfil Table 1.5.1 (reference 1):
- 2.9.7.1.1 Updated land and groundwater monitoring results (as per the approved monitoring proposal in condition 2.9.4) showing the state of land and groundwater upon cessation of activities.
- 2.9.7.1.2 A comparison between the monitoring submitted as part of the baseline report and the monitoring carried out as per condition 2.9.7.1.1 to assess whether significant pollution of land and groundwater by relevant hazardous substances has been caused by the installation.
- 2.9.7.1.3 The levels to which the site and any affected land and groundwater will have to be decontaminated to ensure that the site is returned to the state in the first monitoring carried out as part of the baseline report.
- 2.9.7.2 Where the contamination of land and groundwater at the site poses a significant risk to human health or the environment as a result of the activities carried out by the operator, the operator shall submit a report indicating the actions to be taken for removal, control, containment or reduction of relevant hazardous substances so that the site, taking into account its current or approved future use, ceases to pose such a risk.
- 2.9.7.3 The methods which will be used in order to decontaminate the land. Such methods may also include isolation.
- 2.9.7.4 A detailed waste management strategy which shall include:
- The identification and characterisation of sources, types and quantities of waste (including equipment, fuels, by-products such as ash, etc.);
 - Criteria for segregation of wastes;
 - Proposed treatment, conditioning, transport, storage and disposal/recovery methods;
 - Potential reuse/recycling of such wastes.
- 2.9.7.5 The identification of potential sources of emissions to the atmosphere, land and water (both seawater and groundwater) pollution which might arise from the decontamination process and corresponding mitigation measures to minimise the likelihood of such emissions.

ⁱ sampled, handled, pre-treated/extracted or analysed.

of the best available techniques, at the installation. The report shall consider any relevant published technical guidance current at the time of the notice which is either supplied with or referred to in the notice, and shall assess the costs and benefits of applying techniques described in that guidance, or otherwise identified by the Operator, that may provide environmental improvement.

- 4.4 An independent auditor shall be engaged by the Operator to certify all of the annual waste reporting required by this permit, in line with the Terms of Reference found in Schedule 7 of this permit.
- 4.5 In the case of waste that is sent for treatment or recovery to another facility locally or abroad, the audit trail shall cover all waste from the point of generation or collection to the end recovery or disposal facility.

5 Notifications

- 5.1 The Operator shall notify the Authority without delay of:-
 - 5.1.1 the detection of an emission of any substance which exceeds any limit or criterion in this Permit specified in relation to the substance;
 - 5.1.2 the detection of any fugitive emission which has caused, is causing or may cause significant pollution and/or a public health risk unless the quantity emitted is so trivial that it would be incapable of causing significant pollution and/or a public health risk;
 - 5.1.3 the detection of any malfunction, breakdown or failure of plant or techniques which has caused, is causing or has the potential to cause significant pollution and/or public health risk; and
 - 5.1.4 any accident which has caused, is causing or has the potential to cause significant pollution and/or public health risk; including but not limited to fires and spill of hazardous liquid substances.
- 5.2 The Operator shall submit written confirmation to the Authority of any notification under condition 5.1. In the case of unauthorised emissions, the notification is to be made by sending:-
 - 5.2.1 the information listed in Part A of Schedule 1 to this Permit within 24 hours of such notification; and
 - 5.2.2 the more detailed information listed in Part B of Schedule 1 as soon as practicable thereafter;
 - 5.2.3 the information regarding non-compliance incidents in Schedule 2 (Section 2.9) according to the timeframe specified in Condition 4.2;and such information shall be in accordance with that Schedule.
- 5.3 The Operator shall give written notification as soon as practicable prior to any of the following:-
 - 5.3.1 Permanent cessation of the operation of part or all of the Permitted Installation;
 - 5.3.2 Cessation of operation of part or all of the Permitted Installation for a period likely to exceed six months; and
 - 5.3.3 Resumption of the operation of part or all of the Permitted Installation after a cessation notified under condition 5.3.2.
- 5.4 The Operator shall notify the Authority, as soon as practicable, of any information concerning the state of the site which affects or updates that provided to the Authority as part of the Site Report submitted with the application for this Permit.
- 5.5 The Operator shall notify the following matters to the Authority in writing within 10 working days of their occurrence:-
 - 5.5.1 Where the Operator is a registered company:-

to the extent they are specifically defined in this Permit. It shall include any future amendments or superseding legislation.

- 6.1.8 *"Malta"* means the Island of Malta, the Island of Gozo and the other islands of the Maltese Archipelago, including the territorial waters thereof.
 - 6.1.9 *"Monitoring"* includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, tests and surveys.
 - 6.1.10 *"Permitted Installation"* means the activities and the limits to those activities described in Table 1.1.1 of this Permit.
 - 6.1.11 *"Sewer"* means sewer within the meaning of section 219(1) of the Water Industry Act 1991.
 - 6.1.12 *"Staff"* includes employees, directors or other officers of the Operator, and any other person under the Operator's direct or indirect control, including contractors.
 - 6.1.13 *"Surface water"* means inland waters, except groundwater; transitional waters and coastal waters.
 - 6.1.14 *"Technically Competent Person"* means a person possessing the qualifications, experience and technical competence to abide by the conditions of the Permit;
 - 6.1.15 *"Technically Competent Management"* means the Technically Competent Person or Persons in control of the day-to-day activities authorised by the Permit and carried on at the Site;
 - 6.1.16 *"The Authority"* or *"the Competent Authority"* means the Authority or such other body or person as the Minister responsible for the environment may by order in the Gazette prescribe;
 - 6.1.17 *"The Permit Holder"* means the Permit Holder specified in the Permit or other person to whom the Permit has been transferred in accordance with the Industrial Emissions (Integrated Pollution Prevention and Control) Regulations (LN 10 of 2013), and any statutory provisions or regulations amending or replacing them;
 - 6.1.18 *"The Operator"* means a person who is in occupation of the Site and has responsibility for carrying out day to day activities at the Site;
 - 6.1.19 *"The Regulations"* means the Industrial Emissions (Integrated Pollution Prevention and Control) Regulations 2013 (LN 10 of 2013), and any regulations amending or replacing them;
 - 6.1.20 *"The Site"* means the land, structures, plant and equipment to which this Permit relates;
 - 6.1.21 *"Year"* or *"reporting year"* means calendar year ending 31 December.
- 6.2 Where any condition of this Permit refers to the whole or parts of different documents, in the event of any conflict between the wording of such documents, the wording of the document(s) with the most recent date shall prevail to the extent of such conflict.

Schedule 2**Annual Environmental Report****Important note**

By this submission, you confirm that you give your explicit consent for the entire contents of this Annual Environment Report to be made available on the Authority's public website.

S2.1 Introduction

| | |
|---|--|
| IPPC Permit Number | |
| Reporting Year | |
| Name and location of Site | |
| Brief description of activities at the site | |

S2.2 Environment Management System & Reporting

Please attach a supporting document with the following:

1. Environmental Policy containing the installation's environmental objectives and targets;
2. Environmental Management Programme report (for the reporting year);
3. Environmental Management Programme proposal (for the following year).

Tick (✓)

| |
|--------------------------|
| <input type="checkbox"/> |
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S2.3 Process Data**S2.3.1 Annual Summary**

| | Units | Previous reporting year ⁱ | Current reporting year |
|--|---|--------------------------------------|------------------------|
| Quantity of waste treated | tonnes | | |
| Total Annual Energy Consumption (from electricity and other sources) | MWh | | |
| Electricity from renewable energy sources | MWh | | |
| Total energy consumption per unit waste treated | MWh/tonne of waste treated | | |
| Annual water consumption from mains water | m ³ | | |
| Annual water consumption from rainwater | m ³ | | |
| Annual water consumption from other sources (e.g. bowser) | m ³ | | |
| Total water consumption per unit waste treated | m ³ /tonne of waste treated | | |
| Annual quantity of waste produced (excluding waste accepted on site as part of the facility's normal operations) | tonnes | | |
| Waste produced per unit waste treated | tonne waste produced/ tonne waste treated | | |

ⁱ "Previous reporting year" is not applicable for the first reporting year

S2.4.2 Discharges to sewer

Was trade effluent discharged to the sewer during the reporting year? Yes No

If yes, the following table must be filled:

| Parameter ⁱ | Limit ^v | Standard methodology used | Total annual number of exceedances ⁱⁱ | | Concentration (Annual Average) | | | Total Annual Mass Emissions | | |
|------------------------|--------------------|---------------------------|--|--------------|--------------------------------|---------------|----------------|-----------------------------|---------------|--------------|
| | | | Previous year | Present year | Units | Previous year | Present year | Units | Previous Year | Present Year |
| Volume | | | - | - | - | - | m ³ | - | - | |
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| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Name of laboratory where tests in this section have been carried out
 Is this laboratory accredited (certified) for the above tests? Yes No

Additional documentation to be submitted: Tick (✓)
 Accreditation certificate(s) of laboratory

S2.4.3 Noise monitoring

Noise monitoring report in accordance with the approved monitoring programme Tick (✓)

ⁱ As agreed with the Water Services Corporation, according to the Sewer Discharge Permit.
ⁱⁱ If the total number of exceedances exceeds 0, the value of each of these exceedances (for the reporting year) must be submitted in a separate report, together with action taken to regularise the situation.

Total number of complaints for current reporting year:

S2.8 Land/groundwater monitoring

If required, depending on the results of the baseline report

| | |
|--------------------------|--|
| Date of last monitoring | |
| Monitoring due on (date) | |

Additional documentation to be submitted if monitoring was due during this reporting year:

Monitoring results in accordance with the approved monitoring programme Tick (✓)

| | |
|-----------|--|
| 17 04 04 | Zinc |
| 17 04 05 | Iron and steel |
| 17 04 06 | Tin |
| 17 04 07 | Mixed metals |
| 17 04 11 | Cables other than those mentioned in 17 04 10 |
| 19.12.01 | Paper and cardboard |
| 19 12 04 | Plastic and rubber |
| 19 12 07 | Wood other than that mentioned in 19 12 06* |
| 19 12 08 | Textiles |
| 20 01 01 | Paper and cardboard |
| 20 01 10 | Clothes |
| 20 01 11 | Textiles |
| 20 01 21* | Fluorescent tubes and other mercury containing waste |
| 20 01 23* | Discarded equipment containing chlorofluorocarbons |
| 20 01 35* | Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35 (other than those mentioned in section 2.2.1 only) |
| 20 01 38 | Wood other than that mentioned in 20 01 37* |
| 20 03 07 | Bulky waste (Mattresses Only) |

****Incoming wastes may also leave the site as Outgoing waste, except where this is otherwise explicitly specified***

Outgoing:

| | |
|-----------|---|
| 16 02 16 | Components removed from discarded equipment other than those mentioned in 16 02 15* |
| 19 12 01 | Paper and cardboard (shredded) |
| 19 12 02 | Ferrous Metal |
| 19 12 03 | Non-Ferrous Metal |
| 19 12 04 | Plastic and rubber |
| 19 12 07 | Wood other than that mentioned in 19 12 06* |
| 19 12 08 | Textiles (shredded) |
| 19 12 11* | other wastes (including mixtures of materials) from mechanical treatment of waste containing dangerous substances |
| 19 12 12 | other wastes (including mixtures of materials) from mechanical treatment of waste other than those mentioned in 19 12 11* |

By type of WEEE Equipment:

For temporary storage and processing:

- Computer Towers
- Mobile Phones
- Televisions
- Computer Monitors
- Washing Machines and Clothes Dryers
- Dish Washers
- Electric and Gas Cookers
- Printers and Scanners
- Heaters (Electrical & Gas)
- Air Conditioning Units
- Fridges and Freezers
- Telephones
- Laptops and Notebooks
- Dehumidifying Equipment

Schedule 4

Terms of Reference for Noise Monitoring

1. Introduction

The noise monitoring shall be carried out by the Operator. A consultant approved by the Authority according to the following criteria shall be commissioned who will propose a monitoring procedure for measuring noise levels within and around the installation as described in section 2 below.

The person(s) undertaking the "on field monitoring" shall be in possession of a certification for the collection of data.

The noise monitoring survey and report shall be reviewed by a person who is in possession of a:

- (a) Bachelors degree in Acoustics, or
- (b) Bachelors degree in Physics, Architecture, Civil Engineering or Engineering, Environmental Health, Environmental Science/Management, Occupational Health and Safety **and** a specialisation Masters degree in Acoustics, **or**
- (c) Have any recognised certification in Acoustics and be at least an associate member of the Institute of Acoustics or equivalent grade of Membership of a professional body for those working in acoustics, noise and vibration in any one of the EU member states.

The consultant, in collaboration with the Authority, shall seek advice from the Local Council during the selection of the sensitive receptors.

2. Content of monitoring study

The monitoring study should address the following issues:

1. A description of the installation – this shall include a description of all processes carried out on site and related equipment and infrastructures.
2. A description of the surrounding areas – this shall include identification of the types of activities, whether residential or commercial, roads and other amenities. These shall be location-specific taking into account their location with respect to the site.
3. Identification of the main sources of noise and vibration – this shall include all processes on site, including aspects such as transport noise on site, plant equipment, mechanical operations, etc (amongst others).
4. Identification of the closest noise sensitive receptors – this shall be carried out after assessing the noise levels in the plant's perimeter and in the other locations identified in point 2 above under normal operating conditions of the plant. The various monitoring points shall be identified with a unique code and an analyses of the ambient noise to which each monitoring point is subjected to.
5. Environmental Noise Survey – this shall include details of the standards used for measurements, equipment used including calibration details, resultant measurement data, assessment methods and complaints significance scale. The survey is to be carried out according to the latest revisions of ISO1996 and the rating of industrial noise affecting residential areas shall be according to BS4142:1997. The survey should include perimeter noise levels, baseline noise survey of sensitive receptor sites, noise impact on site sensitive receipts including day and night background levels.
6. The monitoring shall be performed exclusively using type 1 sound level meter. The use of type 2 sound level meters or less is not considered acceptable and will not be considered.

Schedule 6

Selective treatment for materials and components of WEEE

1. As a minimum the following substances, mixtures and components have to be removed from any separately collected WEEE.

- Polychlorinated biphenyls (PCB) containing capacitors in accordance with Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT),
- Mercury containing components, such as switches or backlighting lamps,
- Batteries,
- printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimetres,
- Toner cartridges, liquid and paste, as well as colour toner,
- Plastic containing brominated flame retardants,
- Asbestos waste and components which contain asbestos,
- Cathode ray tubes,
- Chlorofluorocarbons (CFC), hydrochlorofluoro-carbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC),
- Gas discharge lamps,
- Liquid crystal displays (together with their casing where appropriate) of a surface greater than 100 square centimetres and all those back-lighted with gas discharge lamps,
- External electric cables,
- Components containing refractory ceramic fibres as described in Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress for the 23rd time Council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances,
- Components containing radioactive substances with the exception of components that are below the exemption thresholds set in Article 3 of and Annex I to Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation,
- Electrolyte capacitors containing substances of concern (height > 25 mm, diameter > 25 mm or proportionately similar volume).

These substances, mixtures and components shall be disposed of or recovered in compliance with the Waste Regulations (S.L. 504.37).

2. The following components of WEEE that is separately collected have to be treated as indicated:

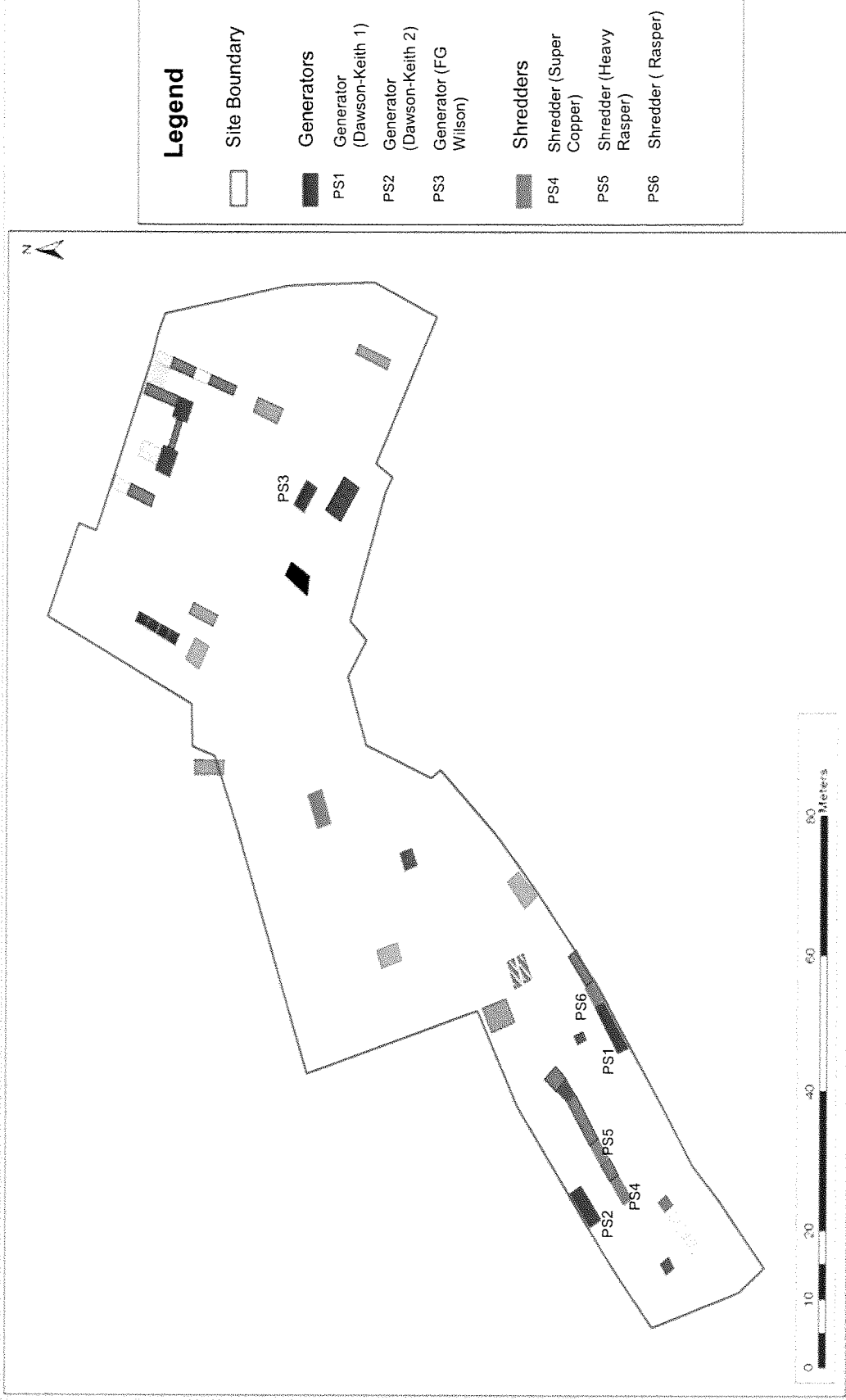
- cathode ray tubes: the fluorescent coating has to be removed,
- equipment containing gases that are ozone depleting or have a global warming potential (GWP) above 15, such as those contained in foams and refrigeration circuits: the gases must be properly extracted and properly treated. Ozone-depleting gases must be treated in accordance with Regulation (EC) No 1005/2009,
- Gas discharge lamps: the mercury shall be removed.

3. Taking into account environmental considerations and the desirability of preparation for re-use and recycling, points 1 and 2 shall be applied in such a way that environmentally-sound preparation for re-use and recycling of components or whole appliances is not hindered.

| # | Nature and extent of audit procedures | Timing | Done by and date | W/P ref |
|---|---|--------|------------------|---------|
| 1 | <p>Objective: To confirm that there is a signed receipt for every waste transfer received at the site</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the signed receipts for every waste transfer received at the site for each quarter within the calendar year and confirm that all waste entries are covered by an issued signed receipt. | | | |
| 2 | <p>Objective: To ensure that an adequate audit trail is maintained to ensure that when a particular waste stream is being treated it can be traced back to its waste generator</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the total waste being treated and ensure that its origin can be traced back. | | | |
| 3 | <p>Objective: To confirm that any hazardous waste movements from the site (entry & exit) are covered with a hazardous waste consignment permit and consignment note</p> <ul style="list-style-type: none"> In cases of movement within the island of Malta, choose a random sample of 10% of the total no. of hazardous waste movements into and out of the site and confirm that all such movements are covered by a valid hazardous waste consignment permit and a waste consignment note. Confirm also that the relevant EWC code has been used. | | | |
| 4 | <p>Objective: To confirm that any hazardous waste movements from the site (entry & exit) are covered with relevant TFS documentation of the Waste Shipments Regulation in cases of export</p> <ul style="list-style-type: none"> In cases of export, choose a random sample of 10% of the total no. of hazardous waste movements out of the site and the relevant TFS movement forms and confirm that all such movements are covered by valid relevant documentation. Confirm also that the relevant EWC code has been used. In the case of waste broker usage, ensure that the waste brokers used are registered with MEPA as such. | | | |

| | | | | |
|----|--|--|--|--|
| 10 | Objective: To identify the waste being treated both locally and abroad, and ensure that it has been recovered appropriately <ul style="list-style-type: none">• Ensure that all relevant documentation, including but not limited to, the hazardous waste consignment permit and consignment note applications, are available in case of local treatment.• Identify the materials exported according to the EWC Code and review actual documentation (including bills of lading) confirming an audit trail showing that the waste has been sent to a recovery facility as per permit requirements. | | | |
|----|--|--|--|--|

Schedule 9 Air Emission Points



END OF PERMIT

Appendix II

Original machinery inspection reports

ECL CONSULTING ENGINEERS

ENGINEERING CONSULTANCY LTD
17, TRIQ IL-MODD
IBRAG, SWQ 2373
MALTA

M: +356 9986 8828
T: +356 2733 4472
E: INFO@ECLCE.COM

20th December 2014

Applicant Details

Applicant: Mr. Matthew Fenech Magrin
Mob No: +356 7905 3463
Tel. No.: +356 2166 7855
Architect: Mr. Joe Bugeja
Site: Metalco Ltd, Scrap Lane, Luqa

Dear Sir,

Following a site visit held on the 29th October 2014 I inspected the machinery and is in good working condition:

ECL CONSULTING ENGINEERS
ING. JOHAN ALOISIO
WARRANT NR: 759
+356 9986 8828 E:JA@ECLCE.COM

Lefort 600

Year of manufacture- 2013
Maximum working pressure - 3000 PSI
Power source: Electricity

Lindemann

Year of manufacture- 1995
Maximum working pressure - 2000 PSI
Power source: Electricity

Lindemann

Year of manufacture- 1998
Maximum working pressure - 3000 PSI
Power source: Electricity

Super chopper:

Technical Spec. SC1412/160
Electrical motor 160 kW
Hägglund motor CB400
Rotor 1 400 mm/0-28 rpm
Knives 12 flying/7 static
Capacity/hour * Up to 12000 kg/hour
Weight Approx 15000 kg
Length x width x height 1700 x 3 000 x 3 500 mm



Heavy Rasper:

Technical Specifications Model- R1207
Rotor - 800 mm 120 rpm
Knives -12 flying/3 static
Capacity* hour -Up to 2000 kg/production hour
Motor -90 kW, 1400 rpm
Weight- 6900 kg
Length x width x height -1750 x 3250 x 3200 mm

Rasper:

Technical Specifications Model R807
Rotor -800 mm / 120 rpm
Knives -8 flying/2 static
Capacity* -Up to 1200 kg/production hour
Motor -75 kW, 1400 rpm
Weight -5500 kg
Length x width x height - 1750 x 2850 x 3200 mm

Eddy Current Separator

Year of manufacture – 2013
Motor -4 kw
Weight- 1800kg
Screening dimension 8- mm
Production- 3mt per hour

Wire Granulator + Separator

Year of manufacture- 2009

Weight – 910 kg

Production rate- 2.5 MT per hour

Motor- 75 kw

Bailer

Brand: Tabarelli pn series

Model: pn1800

Engine Brand – Iveco

Engine Capacity – 3ltr

Production rate: 6-10 mt per hour

LSM Bailer

BTS-WR6500 CTR

Compaction force: 65t (650kN)

Bale size: 1210x800x1000(var.)mm

Bale weight: 450-800kg

Motor: 7,5kW 32A

Voltage: 400V

Size HxBxT: 3320x2060x1310mm

Weight: 3200kg

Strapping: Wire



SUPER STRIPPER 170 CABLE STRIPPER

Length: 1000mm

Width: 640mm

Height: 1270mm

Weight: 600kg

Cutting Capacity: 3mm – 75mm

Cutting Speed: Approx. 27 meters per min

Generators:

Perkins Rolls-Royce – Capacity 630kw

Alister Chalmers – Capacity 280kw

Alister Chalmers – Capacity 280kw

This certificate is valid for 1 year from date of issue.

We trust the above is in line with your requirements, and should you require any further clarifications, please do not hesitate to contact us.

Regards

A handwritten signature in blue ink, consisting of a stylized 'JA' followed by a horizontal line.

Ing. Johan Aloisio
Warrant No. 759

Appendix III

PA 01030/18 quarry application



Full Permission Non Schedule 1

Applicant Details

| | |
|--------------------------------|-----------------|
| Tick If Applicant is a company | true |
| Company Name | Metalco Ltd |
| Company Number | <private> |
| Name | Mario |
| Surname | Cremona |
| Address | <private> |
| Address Line 2 | <private> |
| Address Line 3 | <private> |
| Locality or Country | <private> |
| Post Code | <private> |
| ID / Passport | <private> |
| Tel. No. | <private> |
| Mobile No. | <private> |
| E-Mail | <private> |
| Applicant Type | Private Company |

Perit Details

Please complete

| | |
|-------------------------------|------------------|
| Full Name | Perit Mark Abela |
| Select Address | <private> |
| I.D. No. | <private> |
| Mobile No. | <private> |
| Warrant No. / Partnership No. | <private> |

| | |
|--|-----------|
| Duly Authorised Contact Person for Partnership | <private> |
| Your Ref. for this Application | <private> |

Site Zoning

Tick as applicable

| | |
|----------------------|-------|
| Development Zone | false |
| Design Priority Area | false |
| ODZ | true |
| UCA | false |
| ScheduledSite | false |

Location of Proposed Development

Please complete

| | |
|----------------------|---------------------------|
| Property Name | Metalco Ltd |
| Door No. | 48 |
| Street/Place Name(s) | Scrap Lane, Valletta Road |
| Locality | Luqa |
| Local Council/s | Luqa |

Description of Proposal

List all project components, including development type, no. of units and additional storeys

| | |
|------------------|--|
| Description | Proposed new storage and treatment facilities, hard-standing and landscaping works |
| Development Type | Waste Management Facilities |
| Confidential | |

In terms of the Proviso of Article 33(2) of the Development Planning Act, 2016, the development relates to national security, defence, banks, prisons, the airport and other institutions or premises whose security it is desirable to safeguard.

false

Indicate why the development falls within the scope of the Proviso to Article 33(2) of the Development Planning Act, 2016.

Previous Applications, Permissions, Clearances, Notifications and Enforcement Notices on this Site

Include all relevant PAPB, PA, PC, GDO/DNO, SE, ECF and CTB cases, providing the reference number as used by the authority

PA Ref. No.

PA 3146/13, PA 2823/15, PA 2941/15,
PA 2907/15, Pa 7106/95, E 454/96

Comments

Trees and Rubble Walls

This development includes Felling of trees

No

This development includes Demolition/alteration of rubble walls

No

This development includes New or altered vehicular access

No

If yes, location and species of affected trees/rubble walls and proposed access are shown on drawing number(s)

Other Information

Total site area (indicated in red on site plan) in m squared

9385

Main existing use of site

industrial- waste management

Maximum electricity demand of development in KVA

-

| | |
|--|-------|
| Estimated annual electricity consumption in KWh | - |
| Use of renewable energy sources envisaged including type (if any) | - |
| Fossil Fuel Energy - Gas Fuel | |
| If any other source of energy, other than the electricity mains, is envisaged, please specify fuel type: | |
| Tick if Bulk LPG Storage Tank is used | false |
| Capacity | |
| Fossil Fuel Energy - Liquid Fuel | |
| Liquid Fuel | |
| Diesel | false |
| No. Of Tanks: | |
| Total Capacity: | |
| Kerosene | false |
| No. Of Tanks: | |
| Total Capacity: | |
| Petrol | false |
| No. Of Tanks: | |
| Total Capacity: | |
| Other Fuel Source | false |
| No. Of Tanks | |
| Total Capacity: | |
| None | false |
| What is the daily average Liquid Fuel energy required for this development (KWh) | |
| Water and Sewage | |
| Discharges: This development includes discharges to land, sea or surface waters | No |
| If yes, location of discharge is shown on drawing number(s) | |

RunOff management: How will water runoff from the site be collected or be disposed of? To existing reservoirs

Water Source (for development requiring irrigation from a non potable water supply) mains

For ODZ and Scheduled Areas:

Will the development necessitate trenching of a connection to the potable water distribution network or sewage system? No

If yes, trenching details shown on drawing number(s)

Will the development necessitate the installation of a connection to the electricity distribution network through trenching or erection of poles? No

If yes, trenching/pole details shown on drawing number(s)

Funding

EU Funding false

Project of Common Interest false

Other Funding false

Fund Name

EU Regulations

Required for industrial/non-residential storage development handling dangerous substances

This development is within the scope of the COMAH Regulations (as per Schedule 1 of L.N. 37 of 2003 as amended by L.N. 6 of 2005, and any future amendments thereto). No

Indicate whether application includes one of the substances falling under the scope of the SEVESO Directive or whether the application is within the consultation zones of one of the SEVESO sites.

This development is within the scope of EU Regulation 247 of 2003 (Guidelines for Trans-European Energy Infrastructure)

No

Indicate why the development is within the scope of the Guidelines for Trans-European Energy Infrastructure.

Applicant's Declaration in terms of Article 68(3)

Tick ONE box only

I apply for development permission and declare that, to the best of my knowledge, all the details and information contained in this application and on the submitted drawings/documents accompanying this application are correct and complete.

In addition I, the applicant certify that:

I am the sole owner of the entire site indicated on this site plan.

true

I am not the sole owner of the entire site(or part thereof) indicated on the site plan. However, I have notified (by registered letter or through affixing a notice on site for 5 working days and through publication in a newspaper, a copy of which is attached) the owner/s of my intention to apply and the owner/s has/have granted consent to such a proposal.

false

I am not the sole owner of the entire site(or part thereof) indicated on the site plan. However, I hold the site under an agricultural lease title or under a title of lease and I have notified (by registered letter, a copy of which is attached) the owner/s of my intention to apply to carry out works under a scheme of a Government entity.

false

In my capacity as the authorised public officer, the applicant is the Government of Malta, or any department, agency, authority or other body corporate wholly owned by the Government, and I have notified (by registered letter or through affixing a notice on site for 5 working days and through publication in a newspaper, a copy of which is attached) the owner/s of my intention to apply.

false

 Signature

 Name (in blocks)

 o.b.o

 Date

Perit Declaration

*I, the undersigned Perit, (duly authorised contact person for partnership, where applicable) hereby declare that I shall assume the direction and responsibility of the work referred to in this application, according to Article 97(1)(o) of the Code of Police Laws (Chapter 10), and I also declare that any information or specifications contained in this application and on the submitted drawings/documents are accurate and not misleading. I also hereby declare that the applicant signed the uploaded physical copy of this application form in my presence and recognise that I am legally obliged to retain the original signed form.

true

 Perit Signature

 Perit Official Stamp

 Date

GSPO

I hereby declare that the applicant is a Government entity, a GSPO has been issued in relation to this application, and I have uploaded a copy of the GSPO with this submission

false

Order No

Commitment No

Appendix IV

Technical information of proposed machinery

Zato

Scrap Processing Solutions



Twin-shaft shredder
Pre shredder

BLUE DEVIL

FAST POWERFUL PROFITABLE



www.zatoshredder.com

MORE VALUE TO YOUR SCRAP



METAL
RECYCLING



STEEL MILLS



AUTO
RECYCLING



ALUMINIUM
FOUNDRIES



CAR
MANUFACTURERS



CLOUD REMOTE
MONITOR

BLUE DEVIL

Twin-shaft shredder
Pre shredder

THE GREAT ADVANTAGE OF HAVING A **BLUE DEVIL** IS THE HUGE **VALORISATION** THAT IS GIVEN TO SCRAP, WHICH ACQUIRES.

- **MORE DENSITY • HOMOGENEITY**

A POWERFUL **VALORIZER**

Blue Devil is the only shredder on the market which is specifically developed for the ferrous scrap processing.

- The main processable materials are:
- Bulk and **bundled** mixed scrap from collection;
- White goods like fridges, washing machines...;
- Cars, bulk and in bundles [with mechanics and motor];
- Trimmings from rolling mill and industrial scrap;
- Voluminous sheets;
- Reinforcing rebar;
- Flame cut steel;
- Bulk scrap;
- Tanks, closets, etc...

Steel mills need to buy homogenous and very dense scrap.

A Blue Devil is the only machine available on the market which allows the widest range of ferrous and non-ferrous scrap getting equivalent dimension and dramatically increasing its density.

That is the reason why scrap processed with a Blue Devil is so much valued by steel mills, which pay more for it than for scrap sheared with a standard shear baler.

Scrap processed with a Blue Devil can also be much better cleaned with a separation line, being the material loose and not wrapped. This is another point valued by steel mills, which need to meet environmental requirements.

AN EFFICIENT **VALORISATOR**

All materials designed to the hammer mill – entire cars, bundled cars with mechanics and motors, mixed scrap from collection in bundles, bulk scrap in general, ...- can be prepared for further milling with Blue Devil pre-shredder.

When the hammer mill receives prepared material, its production increases up to 30%.

The hammer mill is also preserved from damages caused by unshreddable blocks which can be involuntarily introduced and works in full safety, enlarging its lifetime and reducing costs for spares.



SHAFTS

On the two shafts, made of special high quality steel, are mounted the cutting blades.

Cutting blades are made of a specific high resistance material, which increases the lifetime. Their geometry is studied in order to maintain a perfect intersection between the two shafts and a fast positioning in the blades seat.

Blades disposition is customized according to the scrap to be processed, both to increase performances and to preserve the machine from excessive stresses, thus granting a superior lifetime.

Blades can have different dimensions: 150, 200 and 300 mm. All raw materials, components and production processes have quality certifications.



CONTAINER

Containers enclose: engine, hydraulic unit, hydraulic pump, electric panel.

The container has an optimal resistance to any weather conditions and is completely sound proof.

Made of galvanized steel sandwich panels, with high density mineral fiber insulation and reinforced floor, fire resistant REI 120. Noise level: 70 dB at 7 mt. distance.

Service door with panic exit bar, main door. Internal lighting.



CONTAINER 40" mm. 12.120 X 2.450 X 2800 (MOTORE ELETTRICO CON INVERTER).

MOTORS AND ENGINES

All models can be driven by diesel or electrical motors.



SAFETY AND COMMANDS

Each Blue Devil is equipped with safety devices which are immediately in the wings whenever needed and help the operator to limit any damage to the machine and to preserve it.

Whenever any uncrushable object falls in, the PLC orders the shafts 3 inversions.

An acoustic signal is also activated.

On all models is also possible to install the Web Remote Survey, the remote control which allows to control, command and produce diagnostics on operation.

In case of any need, Web Remote Survey is specifically developed to control our plants from remote, thus allowing ZATO to identify immediately the problem and make the intervention in a faster and more precise way.



BLUE DEVIL

GF1500

GF4000

GF55000

GF6000

| | | GF1500 | GF4000 | GF55000 | GF6000 |
|---|-----------|--------|--------|---------------|-----------------|
| Main Body | Tonn. | 36 | 42 | 51 | 60 |
| Feeding hopper | Tonn. | 4,6 | 5 | 3,9 | 5,2 |
| Supporting structure | Tonn. | 7 | 7 | 10+6 [Carter] | 11+6,7 [Carter] |
| Hopper capacity | m3 | 7 | 7 | 8 | 12 |
| Shafts | Nr. | 2 | 2 | 2 | 2 |
| Blades 150 mm. | Nr. | 84 | 84 | - | - |
| Blades 160 mm. | Nr. | - | - | 84 | - |
| Blades 200 mm. | Nr. | 60 | 60 | - | 60 |
| Blades 300 mm. | Nr. | - | 84 | - | - |
| Safety inversions | Nr. | 3 | 3 | 3 | 3 |
| Engine power | cv | 571 | 672 | 639,2 | 789 |
| Engine power | kW | 420 | 494 | 470 | 580 |
| Engine speed | Giri/min. | 1800 | 1800 | 1480 | 1480 |
| Hourly production* | | | | | |
| *Mixed collection scrap and cars, baled and bulk, flame cut steel | Tonn/ora | 15/25 | 20/25 | 20/40 | 30/50** |
| **Hourly production Aluminum: slag, bales, sheets | Tonn/ora | 5/10 | - | - | 15/20 |

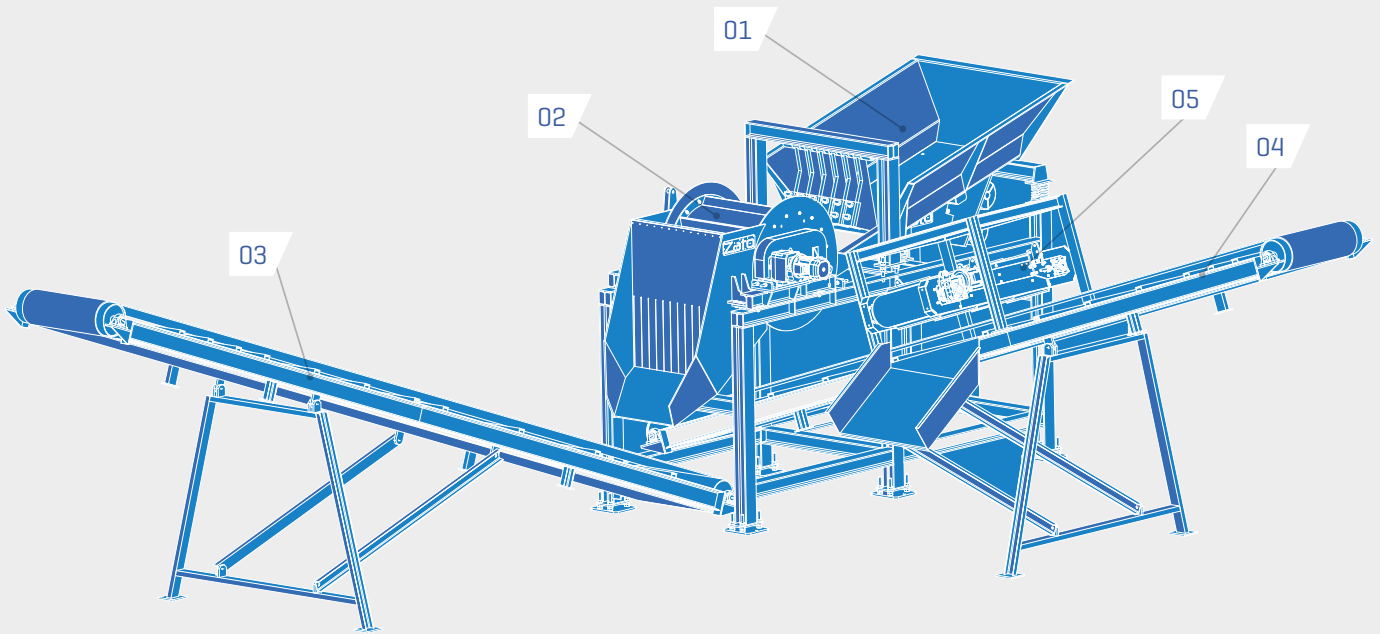


MAGNETIC SEPARATION LINE

A magnetic separation line placed after a Blue Devil twin-shaft shredder allows the recovery of non-ferrous metals present in mixed collection scrap and cars. This widens the possibility of earning profits from scrap, both selling these metals separately and cleaning more thoroughly ferrous material. Ferrous scrap, better cleaned, gets more value in the steel mill.

Almost all metals can be collected and not a single penny is lost.

Composed of: vibrating plan [01], magnetic drum [02], conveyor belt for steel [03], conveyor belt for metals [04], overbelt [05] on the conveyor belt for steel for a deeper cleaning.



ZATO S.R.L.

Via Campi Grandi, 23
25080 PREVALLE (BS) - Italy

ph. +39 [0]30 6461800 r.a.
fax +39 [0]30 6801897

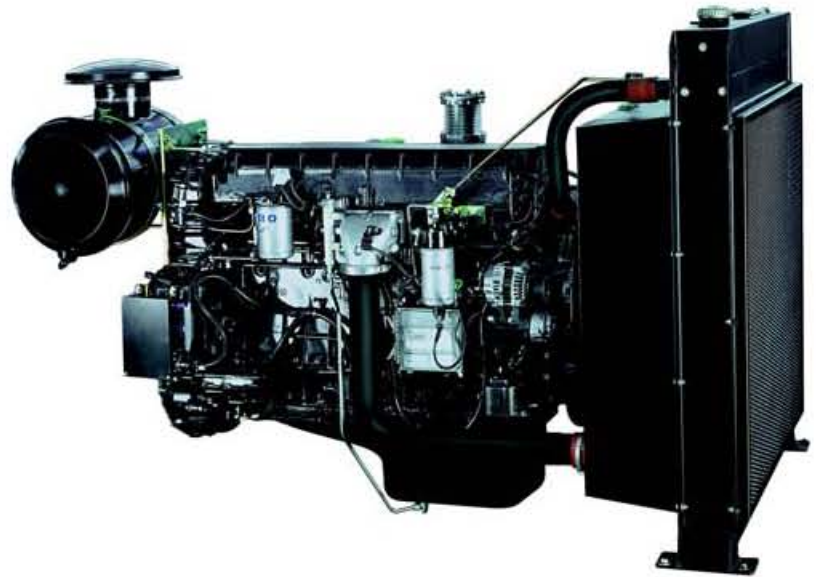
BLUE DEVIL



CURSOR

The 6 cylinder in line turbocharged and aftercooled Diesel engines of the CURSOR family are the result of advanced technological solutions that give maximum power performances with reduced displacement and are offered by Iveco Motors in genset duty market engines.

Fully electronic control of the injection system allows a power range from 236 to 500 kW with the low gaseous emission level required by European 2002/88/EC directive.



PERFORMANCES

| RATINGS ¹⁾ | 1500 rpm | | 1800 rpm | |
|----------------------------|----------|----------|----------|----------|
| | PRIME | STAND-BY | PRIME | STAND-BY |
| Rated output ²⁾ | 263 | 290 | 286 | 315 |

1) Ratings in accordance with ISO 8528 - For duty at temperature over 40°C and/or altitude over 1000 meters must be considered a power derating factor. Contact the Iveco Motors sales organization.

2) Net power at flywheel available after 50 hours running with a $\pm 3\%$ tolerance.

PRIME POWER

The Prime Power is the maximum power available with varying loads for an unlimited number of hours. The average power output during a 24 h period of operation must not exceed 80% of the declared prime power between the prescribed maintenance intervals and at standard environmental conditions.

A 10% overload is permissible for 1 hour every 12 hours of operation.

STAND-BY POWER

This is the maximum power available for a period of 500 hours/year with a mean load factor of 90% of the declared stand-by power. No kind of overload is permissible for this use.

CONTINUOUS POWER

Contact the Iveco Motors sales organization.

TECHNICAL DATA

| | | | |
|--|----------------------------------|-----------|------|
| Engine model | CURSOR13 TE1 | | |
| Diesel 4 stroke - Injection | direct, E.U.I. | | |
| Nb. of cylinders and arrangement | 6, in line | | |
| Speed governor | electronic | | |
| Total displacement | liters | 12.9 | |
| Bore x Stroke | mm | 135 x 150 | |
| Aspiration | turbocharged aftercooled | | |
| Cooling system | liquid (water + 50% Parafllu 11) | | |
| Flywheel housing / Flywheel | SAE1 / 14" | | |
| Flywheel rotation | CCW | | |
| Lube oil specifications | ACEA E3 - E5 | | |
| Lube oil consumption | < 0.1% of fuel consumption | | |
| Fuel specifications | EN 590 | | |
| Oil and filters interval for replacement | hours | 600 | |
| | RPM | 1500 | 1800 |

Fuel consumption at :

| | | | |
|-----------|-------------|--------------|--------------|
| 100% load | l/h (g/kWh) | 61.3 (188.8) | 72.2 (202.0) |
| 80% load | l/h (g/kWh) | 50.6 (194.8) | 59.4 (207.9) |
| 50% load | l/h (g/kWh) | 33.8 (208.2) | 39.7 (222.3) |

Coolant capacity:

| | | |
|-------------------|--------|--------|
| engine only | liters | ~ 19.5 |
| engine + radiator | liters | ~ 67 |

ATB (without canopy) °C 60

No remote cooling radiator allowed.

Lube oil total system capacity including pipes, filters etc. : liters ~ 35

Electrical system 24 Vcc

Starting batteries :

| | | |
|------------------------------|----|---------|
| recommended capacity | Ah | 2 x 185 |
| discharge current (EN 50342) | A | 1200 |

Cold starting :

| | | |
|------------------------|----|-----|
| without air preheating | °C | -10 |
| with air preheating | °C | -25 |

Engine dry weight kg 1180

SCOPE OF SUPPLY

Iveco Motors engine CURSOR13 TE1 equipped with :

- Mounted radiator incorporating air-to-air charge cooler.
- Front radiator guard.
- Oil drain pump.
- Mounted belt driven pusher fan.
- Fan guard.
- Mounted air filter with replaceable cartridges.
- Fuel filter.
- Primary fuel filter/water separator.
- Replaceable oil filter.
- Electronic engine control unit, pump injector units with wiring loom and sensors.
- Box relais.
- WT and OP sensors for gauges.
- HWT and LOP sensors.
- Front engine mounting brackets.
- Flywheel housing SAE 1 and flywheel 14".
- Re-directable exhaust gas elbow.
- Recirculed oil breather system.
- Oil dipstick.
- 24 Vdc electrical system.
- User's handbook.

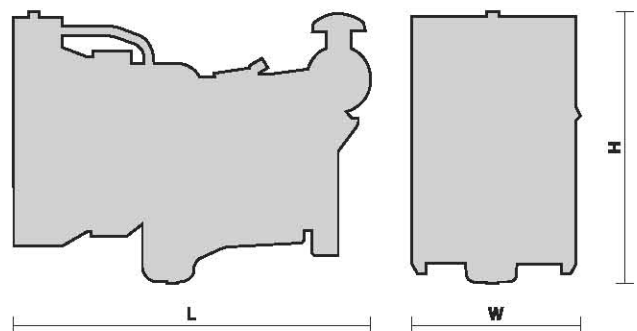
THE ENGINE IS SUPPLIED WITHOUT LIQUIDS.

OPTIONAL EQUIPMENT

On request the engine can be supplied with :

- 230 Volt water jacket heater.
- Turbo and exhaust gas guards.
- Exhaust gas flexible joint.
- Low water level sensors.

OVERALL DIMENSIONS



L = 2272 mm
W = 1055 mm
H = 1468 mm

Iveco Motors

Via Pugla, 15 - 10156 Torino
Tel. +39 (011) 0076245 - Fax +39 (011) 0076275

Iveco Motors

Viale dell'Industria, 15/17 - 20010 Pregnana Milanese - Milano
Tel. +39 (02) 935101 - Fax +39 (02) 93590029

www.ivecomotors.com

Local distributor

CURSOR13 TE1

295 kW (1500 rpm) - 330 kW (1800 rpm)

Engine CURSOR13 TE1

| 1/ GENERAL | | | 1500 rpm | 1800 rpm |
|--|------------------|-----------------|-----------------------------------|---------------|
| Engine model | | | CURSOR13 TE1 | |
| Basic engine | | | F3BE0685A*B001 - 504090622 XZ | |
| Number cylinder | | | 6 | |
| Firing order (N°1 nearest to fan) | | | 1-4-2-6-3-5 | |
| Cylinder arrangement | | | in line | |
| Valves per cylinder | | | 4 | |
| Cycle | | | diesel 4 stroke | |
| Injection system | | | direct E.U.I | |
| Induction System | | | turbo aftercooler air/air | |
| Electronic engine control unit | | | BOSCH MS 6.2 | |
| Bore | mm | | 135 | |
| Stroke | mm | | 150 | |
| Total displacement | liter | | 12,88 | |
| Mean piston speed | m/s | | 7,5 | 9 |
| Compression ratio | | | 16,5 : 1 | |
| Flywheel rotation | | | anti clockwise viewed on flywheel | |
| Housing flywheel | | | SAE 1 | |
| Flywheel | | | 14" | |
| Moment of inertia | | | | |
| | without flywheel | Nm ² | 10,30 | |
| | Flywheel only | Nm ² | 14,12 | |
| BMEP | | | | |
| | Prime Power | bar/kPa | 16,7 / 1665,7 | 15,5 / 1552,8 |
| | Stand-by Power | bar/kPa | 18,3 / 1832,3 | 17,1 / 1708,1 |
| Dry weight (including cooling package) | | | kg ~ 1180 | |
| Energy to coolant | | | kcal/kWh | 281 301 |
| Energy to charge cooler | | | kcal/kWh | 152 200 |
| Energy to radiation | | | kcal/kWh | 56 48 |
| Dimensions L x W x H | | | mm 2272 x 1055 x 1468 | |

| 2/ PERFORMANCES | | | 1500 rpm | 1800 rpm |
|-------------------------|----------------------|--------|----------|----------|
| Continuous Power | (gross) | kWm | 228,7 | 264,5 |
| Prime Power | (gross) | kWm | 282,4 | 324,5 |
| Stand-By Power | (gross) | kWm | 309,2 | 354,5 |
| Fan consumption | | kWm | 14,2 | 24,5 |
| Continuous Power | (net) | kWm | 214,5 | 240 |
| Prime Power | (net) | kWm | 268,2 | 300 |
| Stand-By Power | (net) | kWm | 295,0 | 330 |
| Performances conditions | | | | |
| | temperature | °C | ≤ 40 | |
| | altitude slm | m | ≤ 1000 | |
| Derating | | | | |
| | temperature > T 40°C | %/5°C | | |
| | altitude > 1000 m | %/500m | | |

CURSOR13 TE1

295 kW (1500 rpm) - 330 kW (1800 rpm)

3/ COOLING PACKAGE

| | | 1500 rpm | 1800 rpm | |
|--------------------------------|-------------------|--------------------------|----------|------|
| Type | | liquid | | |
| Recommended coolant | | water + 50 % parafllu 11 | | |
| Coolant capacity | | | | |
| motor only | liter | 19,5 | | |
| radiator and hoses | liter | 47,5 | | |
| Coolant pump flow | l/min | 460,525 | 552,63 | |
| Pressure cap setting | kPa (bar) | 70 (0,7) | | |
| Shutdown switch setting | °C | 103 | | |
| Maximal additional restriction | Pa | 196 | | |
| Air To Boil | Prime Power | °C | 66,8 | 66,9 |
| Fan | | | | |
| diameter | mm | 700 | | |
| number of pale | | 8 | | |
| drive ratio | | 1,4 : 1 | | |
| speed | rpm | 2115 | 2538 | |
| air flow | m ³ /s | 5,59 | 6,71 | |
| power consumption | kWm | 14,2 | 24,5 | |

4/ LUBRIFICATION SYSTEM

| | | 1500 rpm | 1800 rpm |
|--------------------------------------|---------|--------------|----------|
| Oil sump capacity | | | |
| max | liter | 27 | |
| min | liter | 14 | |
| Oil system capacity including filter | liter | 35 | |
| Oil pressure at rated speed | kPa | 250-500 | |
| Oil temperature | | | |
| normale | °C | --- | |
| max | °C | 120 | |
| Engine angularity | | | |
| longitudinale | degrees | 30° | |
| trasverse | degrees | 30° | |
| Servicing intervall | hours | 600 | |
| Oil specification | | ACEA E3 / E5 | |
| Oil consumption | %fuel | < 0,2 | |

5/ AIR INTAKE

| | | 1500 rpm | 1800 rpm |
|-------------------------------------|--------------------------|-------------|-------------|
| Air consumption at 100% of load | m ³ /h (kg/h) | 1329 (1600) | 1640 (1975) |
| Air intake restriction clean filter | kPa (mbar) | 2 (20) | |
| Air intake restriction dirty filter | kPa (mbar) | 5 (50) | |
| Air filter type | | dry | |

6/ ECHAPPEMENT

| | | 1500 rpm | 1800 rpm |
|-----------------------------|------------|----------|----------|
| Gas flow at stand by | kg/h | 1656 | 2041 |
| Max temperature at PRP | °C | 447 | 430 |
| Max allowable back pressure | kPa (mbar) | 5 (50) | |
| Exhaust gas temperature | kcal/kWh | 625 | 661 |

CURSOR13 TE1

295 kW (1500 rpm) - 330 kW (1800 rpm)

Engine CURSOR13 TE1

7/ FUEL SYSTEM

| | | | 1500 rpm | 1800 rpm |
|----------------------------|---------------------|---|---------------------|---------------------|
| Fuel consumption at | | | | |
| Stand-By | gr/kWh (l/h) [kg/h] | | 190,5 (66,9) [56,2] | 200,0 (78,6) [66,0] |
| full load | gr/kWh (l/h) [kg/h] | | 188,8 (61,3) [51,4] | 202,2 (72,2) [60,6] |
| 80% | gr/kWh (l/h) [kg/h] | | 194,8 (50,6) [42,5] | 207,9 (59,4) [49,9] |
| 50% | gr/kWh (l/h) [kg/h] | | 208,2 (33,8) [28,3] | 222,3 (39,7) [33,3] |
| Fuel specifications | | | EN 590 | |
| Feed pump max suction head | | m | --- | |

8/ ELECTRIC SYSTEM

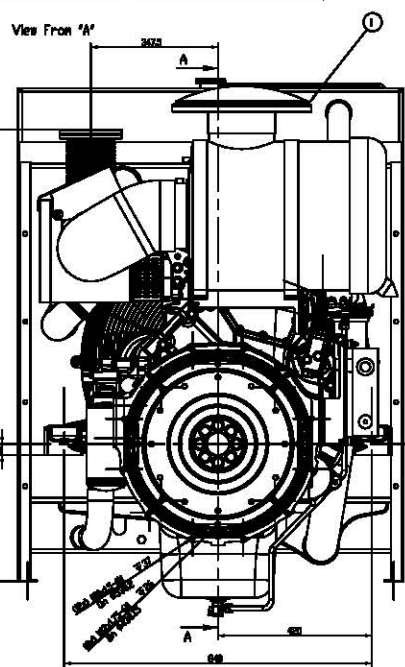
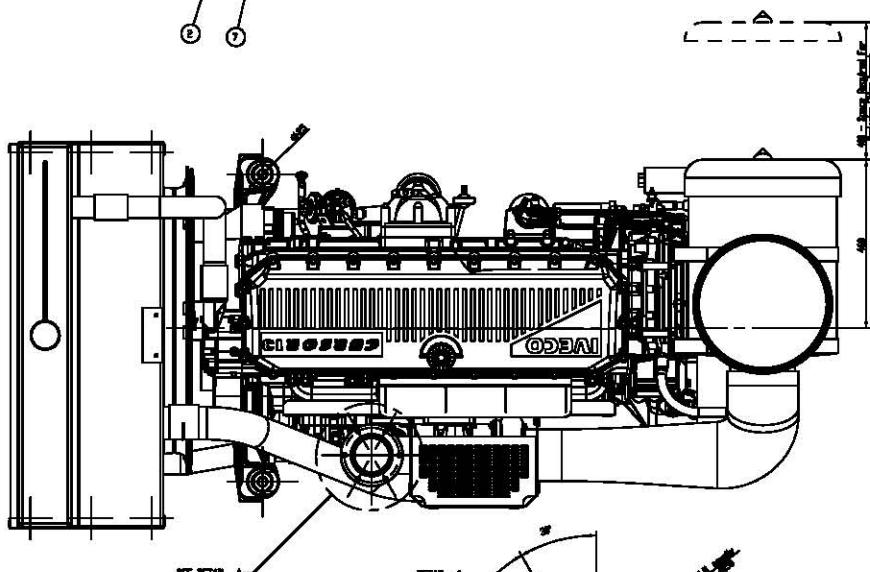
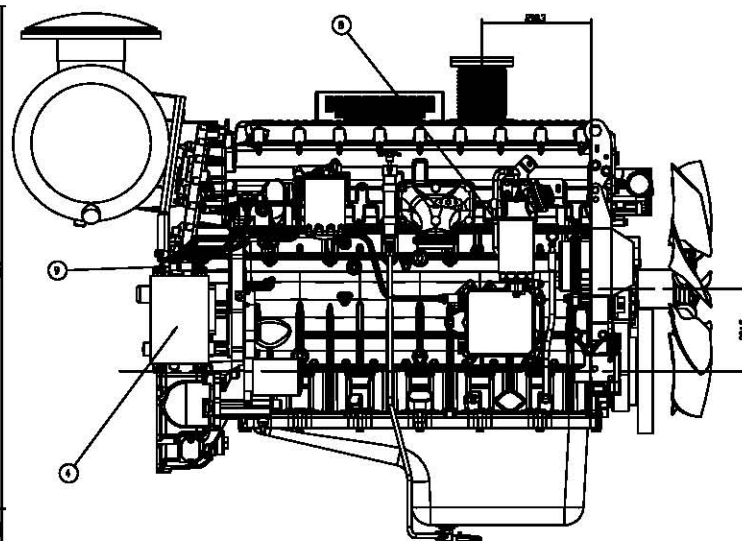
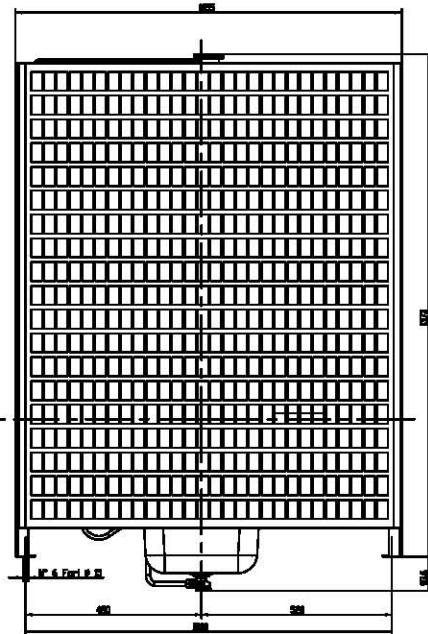
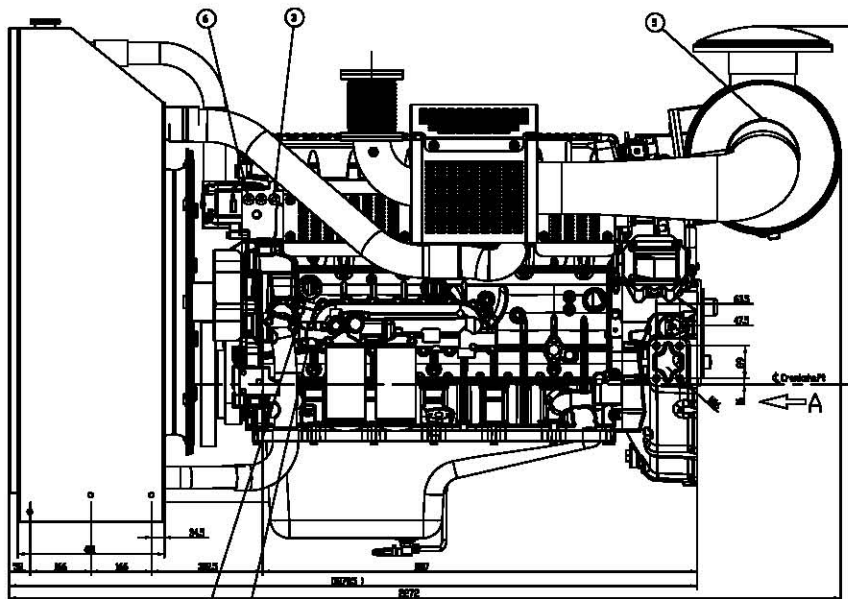
| | | | 1500 rpm | 1800 rpm |
|----------------------------------|----|-----|----------|----------|
| Voltage (negative to ground) | | V | 24 | |
| Starter motor | | | | |
| make | | | DENSO | |
| power | | kW | 5,5 | |
| pull current | | Amp | | |
| hold current | | Amp | | |
| break away current | | Amp | | |
| cranking current | | Amp | | |
| Number of teeth on starter motor | | | 10 | |
| Number of teeth on flywheel | | | 155 | |
| Starting batteries | | | | |
| recommended capacity | Ah | 2x | 185 | |
| discharge current | | Amp | 1200 | |
| (EN 50342) | | | | |
| Alternator | | | | |
| voltage | | V | 28 | |
| charge | | Amp | 90 | |

9/ COLD STARTING

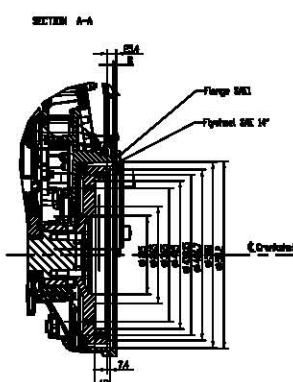
| | | | 1500 rpm | 1800 rpm |
|------------------------|--|----|----------|----------|
| Without air preheating | | °C | -10 | |
| With air preheating | | °C | -25 | |

10/ EMISSION GASEOUS AND PARTICLES

| | | | 1500 rpm | 1800 rpm |
|---------------------|--------------------|--------|----------|----------|
| NO _x | Oxides of nitrogen | gr/kWh | 4,97 | |
| HC | Hydrocarbons | gr/kWh | 0,18 | |
| NO _x +HC | | gr/kWh | 5,15 | |
| CO | Carbon monoxide | gr/kWh | 0,37 | |
| PT | Particles | gr/kWh | 0,082 | |
| Smoke | | Bosch | | |

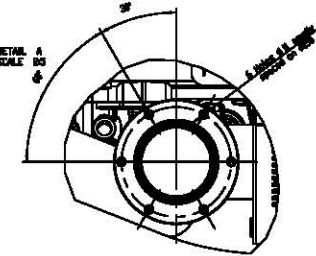


| | | |
|------|----------|---|
| 9 | Pipe Ø80 | Fuel Filter |
| 8 | Pipe Ø60 | Fuel Filter |
| 7 | TMPD/TPI | Low Oil Pressure - Oil Pressure |
| 6 | TATA/TIA | Hot Water Temperature - Water Temperature |
| 5 | TF3 | Start Level Indicator |
| 4 | — | Interface ECU |
| 3 | TS | Water Heater Resistor Switch |
| 2 | — | Water Heater Resistor |
| 1 | TIA | Low Water Level Sensor |
| Pos. | Pos. | Annotation |



SEE DETAIL A

DETAIL A
SCALE 1:25



CAD DRAWING
HANDLING ON CAD SYSTEM ONLY

| <p>REVISIONS</p> <table border="1"> <tr><th>NO.</th><th>DESCRIPTION</th><th>DATE</th></tr> <tr><td> </td><td> </td><td> </td></tr> </table> | | NO. | DESCRIPTION | DATE | | | | <p>SCHEMA INGOMBRO Engine For Genset</p> |
|---|-------------|------------------------------|-------------|------|--|--|--|--|
| NO. | DESCRIPTION | DATE | | | | | | |
| | | | | | | | | |
| <p>CURSORI3TE1/TE2</p> | | <p>503113452 D A 62-9710</p> | | | | | | |

Appendix V

**Comparison of proposed activities with relevant Best
Available Techniques (BAT)**

Annex I: Comparison of the processes at Metalco Ltd with the BREF for Emissions from storage (published July 2006).

1.2 Storage of packaged dangerous substances

| Aspect of BAT | BAT | Status at Metalco Ltd |
|--|---|--|
| <p>Safety and risk management</p> | <p>Operational losses do not occur in storing packaged dangerous materials. The only possible emissions are from incidents and (major) accidents. Companies that fall under the scope of the Seveso II Directive are required to take all measures necessary to prevent and limit the consequences of major accidents. They must, in any, case have a major accident prevention policy (MAPP) and a safety management system to implement the MAPP. Companies in the high risk category (Annex I of the Directive) must also draw up a safety report and an on-site emergency plan and maintain an up-to-date list of substances. However, companies storing dangerous substances not falling under the scope of the Seveso II Directive can also cause emissions from incidents and accidents. Applying a similar, maybe less detailed, safety management system is the first step in preventing and limiting these.</p> <p>BAT in preventing incidents and accidents is to apply a safety management system as described in Sections 4.1.6.1.</p> <p>The degree of detail of the system is clearly dependent on various factors such as: the quantities of substances stored, specific hazards of the substances and the location of the storage. However, the minimum level of BAT is to assess the risks of accidents and incidents on the site using the five steps described in Section 4.1.6.1</p> | <p>A Risk Assessment has been carried out to determine the likelihood of events that could lead to a release of hazardous substances causing contamination to land and/or groundwater, and what pollution prevention measures are or will be in place.</p> <p>Another Risk Assessment has been carried out to establish a system to identify, assess and minimise the environmental risks and hazards of accidents and their consequences. This assessment includes:</p> <ul style="list-style-type: none"> • Emergency plans in case of fire and other emergencies (e.g. explosions); • Plans for actions to be taken in case of failure of abatement equipment (if relevant); and • Plans for actions to be taken in case of other environmentally relevant incidents (e.g. spillages, fuel leakage). <p>The aforementioned risk assessments have been updated in light of the extension of the site.</p> |

| Aspect of BAT | BAT | Status at Metalco Ltd |
|------------------------------------|--|--|
| Training and responsibility | <p>BAT is to appoint a person or persons who is or are responsible for the operation of the store.</p> <p>BAT is to provide the responsible person(s) with specific training and retraining in emergency procedures as described in Section 4.1.7.1 and to inform other staff on the site of the risks of storing packaged dangerous substances and the precautions necessary to safely store substances that have different hazards.</p> | Not applicable. Due to economies of scale this is not considered feasible. |
| Storage area | BAT is to apply a storage building and/or an outdoor storage area covered with a roof, as described in Section 4.1.7.2. For storing quantities of less than 2500 litres or kilograms dangerous substances, applying a storage cell as described in Section 4.1.7.2 is also BAT. | Hazardous waste material, namely i) Waste Electrical and Electronic Equipment, ii) washing liquids, powders and creams; iii) printing toners and iv) batteries, are all stored within a building or a steel shed with an impermeable concrete ground and a roof. |
| Separation and segregation | <p>BAT is to separate the storage area or building of packaged dangerous substances from other storage, from ignition sources and from other buildings on- and off-site by applying a sufficient distance, sometimes in combination with fire-resistant walls. Member States apply different distances between the (outdoor) storage of packaged dangerous substances and other objects on- and off-site; see Section 4.1.7.3 for some examples.</p> <p>BAT is to separate and/or segregate incompatible substances. For the compatible and incompatible combinations see Annex 8.3 of the BREF. Member States apply different distances and/or physical partitioning between the storage of incompatible substances; see Section 4.1.7.4 for some examples.</p> | Different waste fractions are stored separately in designated areas according to different EWC codes. Hazardous waste is not mixed, either with other categories of hazardous waste or with other wastes, substances or materials. |

| Aspect of BAT | BAT | Status at Metalco Ltd |
|--|---|--|
| Containment of leakage and contaminated extinguishant | <p>BAT is to install a liquid-tight reservoir according to Section 4.1.7.5, that can contain all or a part of the dangerous liquids stored above such a reservoir. The choice whether all or only a part of the leakage needs to be contained depends on the substances stored and on the location of the storage (e.g. in a water catchment area) and can only be decided on a case-by-case basis.</p> <p>BAT is to install a liquid-tight extinguishant collecting provision in storage buildings and storage areas according to Section 4.1.7.5. The collecting capacity depends on the substances stored, the amount of substances stored, the type of package used and the applied fire-fighting system and can only be decided on a case-by-case basis.</p> | Not applicable. Due to economies of scale this is not considered feasible. |
| Fire-fighting equipment | <p>BAT is to apply a suitable protection level of fire prevention and fire-fighting measures as described in Section 4.1.7.6. The appropriate protection level has to be decided on a case-by-case basis in agreement with the local fire brigade.</p> | Not applicable. Due to economies of scale this is not considered feasible. |
| Preventing ignition | <p>BAT is to prevent ignition at source as described in Section 4.1.7.6.1.</p> | Not applicable. Due to economies of scale this is not considered feasible. |

Annex I: Comparison of the processes at Metalco Ltd with the BREF for Waste Treatments Industries (published August 2018).

| Aspect of BAT | BAT | Status at Metalco Ltd |
|---|---|---|
| 1. Environmental Management Systems | | |
| BAT 1: Environmental management system (EMS) | <p>In order to improve the overall environmental performance, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the following features:</p> <ul style="list-style-type: none"> i. commitment of the management, including senior management; ii. definition, by the management, of an environmental policy that includes the continuous improvement of the environmental performance of the installation; iii. planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment; iv. implementation of procedures paying particular attention to: <ul style="list-style-type: none"> a) structure and responsibility; b) recruitment, training, awareness and competence; c) communication; d) employee involvement; e) documentation; f) effective process control; g) maintenance programmes; h) emergency preparedness and response; i) safeguarding compliance with environmental legislation; v. checking performance and taking corrective action, paying particular attention to: <ul style="list-style-type: none"> a) monitoring and measurement (see also the JRC Reference Report on Monitoring of emissions to Air and Water from IED installations — ROM); b) corrective and preventive action; c) maintenance of records; d) independent (where practicable) internal or external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained; | <p>An in-house EMS is in place and implemented. An annual review is undertaken (Section 4).</p> |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | |
|--|--|--|-----------|-------------|----|--|--|--|
| | <ul style="list-style-type: none"> vi. review of the EMS and its continuing suitability, adequacy and effectiveness by senior management; vii. following the development of cleaner technologies; viii. consideration for the environmental impacts from the eventual decommissioning of the plant at the design stage of a new plant, and throughout its operating life; ix. application of sectoral benchmarking on a regular basis; x. waste stream management (see BAT 13). xi. establishment of inventories of waste water and waste gas streams (see BAT 2). xii. residues management plan (see description in Section 6.5); xiii. accident management plan (see description in Section 6.5); xiv. odour management plan (see BAT 20); xv. noise and vibration management plan (see BAT 22). <p>The scope (e.g. level of detail) and nature of the EMS (e.g. standardised or non-standardised) will be generally related to the nature, scale and complexity of the installation, and the range of environmental impacts it may have (determined also by the type and amount of wastes processed).</p> | | | | | | | |
| BAT 2: Environmental performance of the plant | <p>In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques provided:</p> <table border="1"> <thead> <tr> <th></th> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Set up and implement waste characterisation and pre- acceptance procedures</td> <td>These procedures aim to ensure the technical (and legal) suitability of waste treatment operations for a particular waste prior to the arrival of the waste at the plant. They include procedures to collect information about the waste input and may include waste sampling and characterisation to achieve sufficient knowledge of the waste composition. Waste pre-acceptance procedures are risk-based considering, for</td> </tr> </tbody> </table> | | Technique | Description | a. | Set up and implement waste characterisation and pre- acceptance procedures | These procedures aim to ensure the technical (and legal) suitability of waste treatment operations for a particular waste prior to the arrival of the waste at the plant. They include procedures to collect information about the waste input and may include waste sampling and characterisation to achieve sufficient knowledge of the waste composition. Waste pre-acceptance procedures are risk-based considering, for | <ul style="list-style-type: none"> a. Implemented. This is achieved through strict inspection for any contamination of the waste material prior to loading/accepting the material at the gate. Such contamination may include oil residues or other unacceptable material, like stones, wood and glass. Trucks entering the site will |
| | Technique | Description | | | | | | |
| a. | Set up and implement waste characterisation and pre- acceptance procedures | These procedures aim to ensure the technical (and legal) suitability of waste treatment operations for a particular waste prior to the arrival of the waste at the plant. They include procedures to collect information about the waste input and may include waste sampling and characterisation to achieve sufficient knowledge of the waste composition. Waste pre-acceptance procedures are risk-based considering, for | | | | | | |

| Aspect of BAT | BAT | | Status at Metalco Ltd |
|---------------|--|--|---|
| | | example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s). | <p>be properly contained so as to avoid possible spills/escapements throughout their journeys.</p> <p>b. Waste is accepted in accordance with the Environmental Permit WM001/08 and its variations.</p> <p>c. Implemented.</p> <p>d. Not applicable. Due to economies of scale this is not considered feasible.</p> <p>e. Implemented. All waste streams are kept separate on site following processing.</p> <p>f. Not applicable. Mixing and blending does not take place on-site.</p> <p>g. Implemented. All waste streams are sorted and unwanted material is separated.</p> |
| b. | Set up and implement waste acceptance procedures | Acceptance procedures aim to confirm the characteristics of the waste, as identified in the pre-acceptance stage. These procedures define the elements to be verified upon the arrival of the waste at the plant as well as the waste acceptance and rejection criteria. They may include waste sampling, inspection and analysis. Waste acceptance procedures are risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s). | |
| c. | Set up and implement a waste tracking system and inventory | A waste tracking system and inventory aim to track the location and quantity of waste in the plant. It holds all the information generated during waste pre-acceptance procedures (e.g. date of arrival at the plant and unique reference number of the waste, information on the previous waste holder(s), pre-acceptance and acceptance analysis results, intended treatment route, nature and quantity of the waste held on site including all identified hazards), acceptance, storage, treatment and/or transfer off site. The waste tracking system is risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as | |

| Aspect of BAT | BAT | | Status at Metalco Ltd | |
|---------------|-----|---|---|--|
| | | | well as the information provided by the previous waste holder(s). | |
| | d. | Set up and implement an output quality management system | This technique involves setting up and implementing an output quality management system, so as to ensure that the output of the waste treatment is in line with the expectations, using for example existing EN standards. This management system also allows the performance of the waste treatment to be monitored and optimised, and for this purpose may include a material flow analysis of relevant components throughout the waste treatment. The use of a material flow analysis is risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s). | |
| | e. | Ensure waste segregation | Waste is kept separated depending on its properties in order to enable easier and environmentally safer storage and treatment. Waste segregation relies on the physical separation of waste and on procedures that identify when and where wastes are stored. | |
| | f. | Ensure waste compatibility prior to mixing or blending of waste | Compatibility is ensured by a set of verification measures and tests in order to detect any unwanted and/or potentially dangerous chemical reactions between wastes (e.g. polymerisation, gas evolution, exothermal reaction, decomposition, crystallisation, precipitation) when mixing, blending or carrying out other treatment operations. The compatibility tests are risk-based considering, for example, the | |

| Aspect of BAT | BAT | | Status at Metalco Ltd |
|--|---|---|--|
| | | hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s). | |
| | g. | Sort incoming solid waste Sorting of incoming solid waste (1) aims to prevent unwanted material from entering subsequent waste treatment process(es). It may include: <ul style="list-style-type: none"> • manual separation by means of visual examinations; • ferrous metals, non-ferrous metals or all-metals separation; • optical separation, e.g. by near-infrared spectroscopy or X-ray systems; • density separation, e.g. by air classification, sink-float tanks, vibration tables; • size separation by screening/sieving. | |
| BAT 3: Inventory of waste water and waste gas streams | In order to facilitate the reduction of emissions to water and air, BAT is to establish and to maintain an inventory of waste water and waste gas streams, as part of the environmental management system (see BAT 1), that incorporates all of the following features: <ol style="list-style-type: none"> i. information about the characteristics of the waste to be treated and the waste treatment processes, including: <ol style="list-style-type: none"> a) simplified process flow sheets that show the origin of the emissions; b) descriptions of process-integrated techniques and waste water/waste gas treatment at source including their performances; ii. information about the characteristics of the waste water streams, such as: <ol style="list-style-type: none"> a) average values and variability of flow, pH, temperature, and conductivity; b) average concentration and load values of relevant substances and their variability (e.g. COD/TOC, nitrogen species, phosphorus, metals, priority | | The majority of the waste water generated on site is from rainwater. Some minor contaminants are likely to be present in the effluent, which are filtered through a silt trap and oil-water interceptors. No major environmental concerns relating to waste water are present. The characteristics of the waste water streams will be assessed during the land and groundwater baseline study. |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | |
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| | <p>substances / micropollutants);</p> <p>c) data on bioeliminability (e.g. BOD, BOD to COD ratio, Zahn-Wellens test, biological inhibition potential (e.g. inhibition of activated sludge) (see BAT 52);</p> <p>iii. information about the characteristics of the waste gas streams, such as:</p> <p>a) average values and variability of flow and temperature;</p> <p>b) average concentration and load values of relevant substances and their variability (e.g. organic compounds, POPs such as PCBs);</p> <p>c) flammability, lower and higher explosive limits, reactivity;</p> <p>d) presence of other substances that may affect the waste gas treatment system or plant safety (e.g. oxygen, nitrogen, water vapour, dust).</p> <p>Applicability The scope (e.g. level of detail) and nature of the inventory will generally be related to the nature, scale and complexity of the installation, and the range of environmental impacts it may have (determined also by the type and amount of wastes processed).</p> | <p>The majority of the waste gases are produced by the generator. These gases are typical of the activities carried out on site. No major environmental concerns relating to waste gases are present. Information on the characteristics of the waste gases will be provided as part of the air quality monitoring exercise.</p> | | | | | | |
| <p>BAT 4: Reducing environmental risks related to waste storage</p> | <p>In order to reduce the environmental risk associated with the storage of waste, BAT is to use all of the techniques given below.</p> <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> <th>Applicability</th> </tr> </thead> <tbody> <tr> <td>a. Optimised storage location</td> <td> <p>This includes techniques such as:</p> <ul style="list-style-type: none"> the storage is located as far as technically and economically possible from sensitive receptors, watercourses, etc.; the storage is located in such a way so as to eliminate or minimise the unnecessary handling of wastes within the plant (e.g. the same wastes are handled twice or more or the transport </td> <td>Generally applicable to new plants.</td> </tr> </tbody> </table> | Technique | Description | Applicability | a. Optimised storage location | <p>This includes techniques such as:</p> <ul style="list-style-type: none"> the storage is located as far as technically and economically possible from sensitive receptors, watercourses, etc.; the storage is located in such a way so as to eliminate or minimise the unnecessary handling of wastes within the plant (e.g. the same wastes are handled twice or more or the transport | Generally applicable to new plants. | <p>a. Implemented. the site layout was originally designed with these factors in mind.</p> <p>b. Implemented. The maximum quantities of waste are identified in Section 5.1.2 of the Form C report. The quantity of waste in the facility is always known due to the presence of a weighbridge at the entrance of the site. Since it is commercially advantageous to have short</p> |
| Technique | Description | Applicability | | | | | | |
| a. Optimised storage location | <p>This includes techniques such as:</p> <ul style="list-style-type: none"> the storage is located as far as technically and economically possible from sensitive receptors, watercourses, etc.; the storage is located in such a way so as to eliminate or minimise the unnecessary handling of wastes within the plant (e.g. the same wastes are handled twice or more or the transport | Generally applicable to new plants. | | | | | | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd |
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| | | | distances on site are unnecessarily long). | <p>residence times, extensive residence times are never an issue.</p> <p>c. Implemented. Documentation is always kept up to date, sensitive wastes are stored and processed indoors, and containers and drums are maintained.</p> <p>d. Implemented.</p> |
| b. | Adequate storage capacity | <p>Measures are taken to avoid accumulation of waste, such as:</p> <ul style="list-style-type: none"> • the maximum waste storage capacity is clearly established and not exceeded taking into account the characteristics of the wastes (e.g. regarding the risk of fire) and the treatment capacity; • the quantity of waste stored is regularly monitored against the maximum allowed storage capacity; • the maximum residence time of waste is clearly established. | Generally applicable. | |
| c. | Safe storage operation | <p>This includes measures such as:</p> <ul style="list-style-type: none"> • equipment used for loading, unloading and storing waste is clearly documented and labelled; • wastes known to be sensitive to heat, light, air, water, etc. are protected from such ambient conditions; • containers and drums are fit for purpose and stored securely. | | |
| d. | Separate area for storage and handling of packaged hazardous waste | When relevant, a dedicated area is used for storage and handling of packaged hazardous waste. | | |
| BAT 5: Reducing | In order to reduce the environmental risk associated with the handling and transfer | | | Reference to BREF: Emissions |

| Aspect of BAT | BAT | Status at Metalco Ltd |
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| <p>the implications associated with the handling and transfer of waste</p> | <p>of waste, BAT is to set up and implement handling and transfer procedures.</p> <p>Handling and transfer procedures aim to ensure that wastes are safely handled and transferred to the respective storage or treatment. They include the following elements:</p> <ul style="list-style-type: none"> • handling and transfer of waste are carried out by competent staff; • handling and transfer of waste are duly documented, validated prior to execution and verified after execution; • measures are taken to prevent, detect and mitigate spills; • operation and design precautions are taken when mixing or blending wastes (e.g. vacuuming dusty/powdery wastes). <p>Handling and transfer procedures are risk-based considering the likelihood of accidents and incidents and their environmental impact.</p> | <p>from Storage.</p> <p>Incoming material is recorded through receipts which are kept on site. Material is separated into the different waste streams after it is brought on site. All material is handled by competent personnel that are trained in mitigating spillages and accidents/incidents which may occur on site. No mixing or blending of different wastes is carried out on site. Outgoing material is documented through Annex forms which are submitted to ERA.</p> |
| <p>1.2 Monitoring</p> | | |
| <p>BAT 6: Monitoring of water quality parameters</p> | <p>For relevant emissions to water as identified by the inventory of waste water streams (see BAT 3), BAT is to monitor key process parameters (e.g. waste water flow, pH, temperature, conductivity, BOD) at key locations (e.g. at the inlet and/or outlet of the pretreatment, at the inlet to the final treatment, at the point where the emission leaves the installation).</p> | <p>Not applicable. No emissions to water take place on site. The waste water is stored in the cesspits. The waste will be collected by Waste Oils Co Ltd. who are authorised to collect this waste (GBR12/01531/19 and others). The material is transported to their facility at Marsa. The Consignment Permit procedure is abided to.</p> |
| <p>BAT 7: Reduction of volume and/or pollutant load of</p> | <p>BAT is to monitor emissions to water with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an</p> | <p>Not applicable. No emissions to water take place on site. The waste water is stored in the</p> |

| Aspect of BAT | BAT | | | | | Status at Metalco Ltd |
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| waste water streams | equivalent scientific quality. | | | | | cesspits. The waste will be collected by Waste Oils Co Ltd. who are authorised to collect this waste (GBR12/01531/19 and others). The material is transported to their facility at Marsa. The Consignment Permit procedure is abided to. |
| | Substance/ parameter | Standard(s) | Waste treatment process | Minimum monitoring frequency (1) (2) | Monitoring associated with | |
| | Adsorbable organically bound halogens (AOX) (3) (4) | EN ISO 9562 | Treatment of water-based liquid waste | Once every day | BAT 20 | |
| | Benzene, toluene, ethylbenzene, xylene (BTEX) (3) (4) | EN ISO 15680 | Treatment of water-based liquid waste | Once every month | | |
| | Chemical oxygen demand (COD) (5) (6) | No EN standard available | All waste treatments except treatment of water-based liquid waste | Once every month | | |
| | | | Treatment of water-based liquid waste | Once every day | | |
| Free cyanide (CN-) (3) (4) | Various EN standards available (i.e. EN ISO 14403-1 and -2) | Treatment of water-based liquid waste | Once every day | | | |

| Aspect of BAT | BAT | | | | Status at Metalco Ltd |
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| | Hydrocarbon oil index (HOI) (4) | EN ISO 9377-2 | Mechanical treatment in shredders of metal waste | Once every month | |
| | | | Treatment of WEEE containing VFCs and/or VHCs | | |
| | | | Re-refining of waste oil | | |
| | | | Physico-chemical treatment of waste with calorific value | | |
| | | | Water washing of excavated contaminated soil | | |
| | | | Treatment of water- based liquid waste | | |
| | Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Nickel (Ni), Lead (Pb), Zinc (Zn) (3) (4) | Various EN standards available (e.g. EN ISO 11885, EN ISO 17294-2, EN ISO 15586) | Mechanical treatment in shredders of metal waste | Once every month | |
| | | | Treatment of WEEE containing VFCs and/or VHCs | | |
| | | | Mechanical biological treatment of waste | | |
| | | | Re-refining of waste oil | | |
| Physico-chemical | | | | | |

| Aspect of BAT | BAT | | | | | Status at Metalco Ltd |
|---------------|--------------------------------------|--|--|------------------|--|-----------------------|
| | | | treatment of waste with calorific value | | | |
| | | | Physico-chemical treatment of solid and/or pasty waste | | | |
| | | | Regeneration of spent solvents | | | |
| | | | Water washing of excavated contaminated soil | | | |
| | | | Treatment of water- based liquid waste | | | |
| | Manganese (Mn) (3) (4) | | Treatment of water- based liquid waste | Once every day | | |
| | Hexavalent chromium (Cr(VI)) (3) (4) | Various EN standards available (i.e. EN ISO 10304-3, EN ISO 23913) | Treatment of water- based liquid waste | Once every day | | |
| | Mercury (Hg) (3) (4) | Various EN standards available (i.e. EN ISO 17852, EN ISO 12846) | Mechanical treatment in shredders of metal waste | Once every month | | |
| | | | Treatment of WEEE containing VFCs and/or VHCs | | | |
| | | | Mechanical | | | |

| Aspect of BAT | BAT | | | | Status at Metalco Ltd |
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| | | | biological treatment of waste | | |
| | | | Re-refining of waste oil | | |
| | | | Physico-chemical treatment of waste with calorific value | | |
| | | | Physico-chemical treatment of solid and/or pasty waste | | |
| | | | Regeneration of spent solvents | | |
| | | | Water washing of excavated contaminated soil | | |
| | | | Treatment of water- based liquid waste | | |
| | PFOA (3) | No EN standard available | All waste treatments | Once every six months | |
| | PFOS (3) | | | | |
| | Phenol index (6) | EN ISO 14402 | Re-refining of waste oil | Once every month | |
| | | | Physico-chemical treatment of waste with calorific value | | |
| Treatment of water- based liquid waste | | | Once every day | | |
| Total | EN 12260, | Biological | Once every | | |

| Aspect of BAT | BAT | | | | Status at Metalco Ltd |
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| | nitrogen (Total N) (6) | EN ISO 11905-1 | treatment of waste | month | |
| | | | Re-refining of waste oil | | |
| | | | Treatment of water- based liquid waste | Once every day | |
| | Total organic carbon (TOC) (5) (6) | EN 1484 | All waste treatments except treatment of water- based liquid waste | Once every month | |
| | | | Treatment of water- based liquid waste | Once every day | |
| | Total phosphorus (Total P) (6) | Various EN standards available (i.e. EN ISO 15681-1 and -2, EN ISO 6878, EN ISO 11885) | Biological treatment of waste | Once every month | |
| | | | Treatment of water- based liquid waste | Once every day | |
| | Total suspended solids (TSS) (6) | EN 872 | All waste treatments except treatment of water- based liquid waste | Once every month | |
| | | | Treatment of water-based liquid waste | Once every day | |
| | (1) Monitoring frequencies may be reduced if the emission levels are proven to be sufficiently stable. | | | | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | | | | | | | | | | | | | |
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| | <p>(2) In the case of batch discharge less frequent than the minimum monitoring frequency, monitoring is carried out once per batch.</p> <p>(3) The monitoring only applies when the substance concerned is identified as relevant in the waste water inventory mentioned in BAT 3.</p> <p>(4) In the case of an indirect discharge to a receiving water body, the monitoring frequency may be reduced if the downstream waste water treatment plant abates the pollutants concerned.</p> <p>(5) Either TOC or COD is monitored. TOC is the preferred option, because its monitoring does not rely on the use of very toxic compounds.</p> <p>(6) The monitoring applies only in the case of a direct discharge to a receiving water body.</p> | | | | | | | | | | | | | | | | | | | | | |
| <p>BAT 8: Monitoring channelled emissions to air</p> | <p>BAT is to monitor channelled emissions to air with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.</p> <table border="1"> <thead> <tr> <th>Substance/ Parameter</th> <th>Standard (s)</th> <th>Waste treatment process</th> <th>Minimum monitoring frequency (1)</th> <th>Monitoring associated with</th> </tr> </thead> <tbody> <tr> <td>Brominated flame retardants (2)</td> <td>No EN standard available</td> <td>Mechanical treatment in shredders of metal waste</td> <td>Once every year</td> <td>BAT 25</td> </tr> <tr> <td>CFCs</td> <td>No EN standard available</td> <td>Treatment of WEEE containing VFCs and/or VHCs</td> <td>Once every six months</td> <td>BAT 29</td> </tr> <tr> <td>Dioxin-like PCBs</td> <td>EN 1948- 1, -2, and -4 (3)</td> <td>Mechanical in treatment shredders of metal waste (2)</td> <td>Once every year</td> <td>BAT 25</td> </tr> </tbody> </table> | Substance/ Parameter | Standard (s) | Waste treatment process | Minimum monitoring frequency (1) | Monitoring associated with | Brominated flame retardants (2) | No EN standard available | Mechanical treatment in shredders of metal waste | Once every year | BAT 25 | CFCs | No EN standard available | Treatment of WEEE containing VFCs and/or VHCs | Once every six months | BAT 29 | Dioxin-like PCBs | EN 1948- 1, -2, and -4 (3) | Mechanical in treatment shredders of metal waste (2) | Once every year | BAT 25 | <p>Implemented. Refer to Section 16.0 of the Form C report.</p> |
| Substance/ Parameter | Standard (s) | Waste treatment process | Minimum monitoring frequency (1) | Monitoring associated with | | | | | | | | | | | | | | | | | | |
| Brominated flame retardants (2) | No EN standard available | Mechanical treatment in shredders of metal waste | Once every year | BAT 25 | | | | | | | | | | | | | | | | | | |
| CFCs | No EN standard available | Treatment of WEEE containing VFCs and/or VHCs | Once every six months | BAT 29 | | | | | | | | | | | | | | | | | | |
| Dioxin-like PCBs | EN 1948- 1, -2, and -4 (3) | Mechanical in treatment shredders of metal waste (2) | Once every year | BAT 25 | | | | | | | | | | | | | | | | | | |

| Aspect of BAT | BAT | | | | | Status at Metalco Ltd |
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| | | | Decontamination of equipment containing PCBs | Once every three months | BAT 51 | |
| | Dust | EN 13284-1 | Mechanical treatment of waste | Once every six months | BAT 25 | |
| | | | Mechanical biological treatment of waste | | BAT 34 | |
| | | | Physico-chemical treatment of solid and/or pasty waste | | BAT 41 | |
| | | | Thermal treatment of spent activated carbon, waste catalysts and excavated contaminated soil | | BAT 49 | |
| | | | Water washing of excavated contaminated soil | | BAT 50 | |
| | HCl | EN 1911 | Thermal treatment of spent activated carbon, waste catalysts and excavated contaminated soil (2) | Once every six months | BAT 49 | |
| | | | Treatment of water-based liquid waste (2) | | BAT 53 | |
| | HF | No EN standard available | Thermal treatment of spent activated carbon, waste catalysts and excavated contaminated soil (2) | Once every six months | BAT 49 | |
| | Hg | EN 13211 | Treatment of WEEE | Once every | BAT 32 | |

| Aspect of BAT | BAT | | | | | Status at Metalco Ltd |
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| | | | containing mercury | three months | | |
| | H2 S | No EN standard available | Biological treatment of waste (4) | Once every six months | BAT 34 | |
| | Metals and metalloids except mercury (e.g. As, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Se, Tl, V) (2) | EN 14385 | Mechanical treatment in shredders of metal waste | Once every year | BAT 25 | |
| | NH3 | No EN standard available | Biological treatment of waste (4) | Once every six months | BAT 34 | |
| | | | Physico-chemical treatment of solid and/or pasty waste (2) | Once every six months | BAT 41 | |
| | | | Treatment of water-based liquid waste (2) | | BAT 53 | |
| | Odour concentration | EN 13725 | Biological treatment of waste (5) | Once every six months | BAT 34 | |
| | PCDD/F (2) | EN 1948-1, -2 and -3 (3) | Mechanical treatment in shredders of metal waste | Once every year | BAT 25 | |
| | TVOC | EN 12619 | Mechanical treatment in shredders of metal waste | Once every six months | BAT 25 | |
| | | | Treatment of WEEE containing | Once every six months | BAT 29 | |

| Aspect of BAT | BAT | | | | Status at Metalco Ltd | |
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| | | | VFCs and/or VHCs | | | |
| | | | Mechanical treatment of waste with calorific value (2) | Once every six months | BAT 31 | |
| | | | Mechanical biological treatment of waste | Once every six months | BAT 34 | |
| | | | Physico-chemical treatment of solid and/or pasty waste (2) | Once every six months | BAT 41 | |
| | | | Re-refining of waste oil | | BAT 44 | |
| | | | Physico-chemical treatment of waste with calorific value | | BAT 45 | |
| | | | Regeneration of spent solvents | | BAT 47 | |
| | | | Thermal treatment of spent activated carbon, waste catalysts and excavated contaminated soil | | BAT 49 | |
| | | | Water washing of excavated contaminated soil | | BAT 50 | |
| | | | Treatment of water-based liquid waste (2) | BAT 53 | | |
| | | | Decontamination of equipment containing PCBs (6) | Once every three months | BAT 51 | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | | | | | |
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| | <p>(1) Monitoring frequencies may be reduced if the emission levels are proven to be sufficiently stable.</p> <p>(2) The monitoring only applies when the substance concerned is identified as relevant in the waste gas stream based on the inventory mentioned in BAT 3.</p> <p>(3) Instead of EN 1948-1, sampling may also be carried out according to CEN/TS 1948-5.</p> <p>(4) The odour concentration may be monitored instead.</p> <p>(5) The monitoring of NH₃ and H₂S can be used as an alternative to the monitoring of the odour concentration.</p> <p>(6) The monitoring only applies when solvent is used for cleaning the contaminated equipment.</p> | | | | | | | | | | | | | |
| <p>BAT 9: Monitoring of diffuse emissions of organic compounds from solvent regeneration</p> | <p>BAT is to monitor diffuse emissions of organic compounds to air from the regeneration of spent solvents, the decontamination of equipment containing POPs with solvents, and the physico-chemical treatment of solvents for the recovery of their calorific value, at least once per year using one or a combination of the techniques given below.</p> <table border="1"> <thead> <tr> <th></th> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a</td> <td>Measurement</td> <td>Sniffing methods, optical gas imaging, solar occultation flux or differential absorption. See descriptions in Section 6.2.</td> </tr> <tr> <td>b</td> <td>Emissions factors</td> <td>Calculation of emissions based on emissions factors, periodically validated (e.g. once every two years) by measurements.</td> </tr> <tr> <td>c</td> <td>Mass balance</td> <td>Calculation of diffuse emissions using a mass balance considering the solvent input, channelled emissions to air, emissions to water, the solvent in the process output, and process (e.g. distillation) residues.</td> </tr> </tbody> </table> | | Technique | Description | a | Measurement | Sniffing methods, optical gas imaging, solar occultation flux or differential absorption. See descriptions in Section 6.2. | b | Emissions factors | Calculation of emissions based on emissions factors, periodically validated (e.g. once every two years) by measurements. | c | Mass balance | Calculation of diffuse emissions using a mass balance considering the solvent input, channelled emissions to air, emissions to water, the solvent in the process output, and process (e.g. distillation) residues. | <p>Not applicable. Does not take place on site.</p> |
| | Technique | Description | | | | | | | | | | | | |
| a | Measurement | Sniffing methods, optical gas imaging, solar occultation flux or differential absorption. See descriptions in Section 6.2. | | | | | | | | | | | | |
| b | Emissions factors | Calculation of emissions based on emissions factors, periodically validated (e.g. once every two years) by measurements. | | | | | | | | | | | | |
| c | Mass balance | Calculation of diffuse emissions using a mass balance considering the solvent input, channelled emissions to air, emissions to water, the solvent in the process output, and process (e.g. distillation) residues. | | | | | | | | | | | | |

| Aspect of BAT | BAT | Status at Metalco Ltd |
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| BAT 10: Monitoring odour emissions | <p>BAT is to periodically monitor odour emissions.</p> <p>Description Odour emissions can be monitored using:</p> <ul style="list-style-type: none"> • EN standards (e.g. dynamic olfactometry according to EN 13725 in order to determine the odour concentration or EN 16841-1 or -2 in order to determine the odour exposure); • when applying alternative methods for which no EN standards are available (e.g. estimation of odour impact), ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality. <p>The monitoring frequency is determined in the odour management plan (see BAT 12).</p> <p>Applicability The applicability is restricted to cases where an odour nuisance at sensitive receptors is expected and/or has been substantiated.</p> | <p>Not applicable. Does not take place on site.</p> |
| BAT 11: Monitoring of the annual consumption of water, energy and raw materials along with the annual generation of waste water and residues | <p>BAT is to monitor the annual consumption of water, energy and raw materials as well as the annual generation of residues and waste water, with a frequency of at least once per year.</p> <p>Description Monitoring includes direct measurements, calculation or recording, e.g. using suitable meters or invoices. The monitoring is broken down at the most appropriate level (e.g. at process or plant/installation level) and considers any significant changes in the plant/installation.</p> | <p>Implemented. Refer to Section 4, 5.6 & 7. Electricity and water consumption are monitored through normal electricity and water meters, respectively. Raw materials such as fuels are tracked through receipts which are kept on site.</p> |
| 1.3 Emissions to air | | |
| BAT 12: Reducing odour emissions | <p>In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management system (see BAT 1), that includes all of the</p> | <p>Not applicable. Odour is not generated on site.</p> |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | | | | | | | | | |
|--|---|---|---|-------------|---------------|----|----------------------------|---|----------------------------------|----|--------------------------|---|---|----|------------------------------|---|-----------------------|--|
| | <p>following elements:</p> <ul style="list-style-type: none"> • a protocol containing actions and timelines; • a protocol for conducting odour monitoring as set out in BAT 10; • a protocol for response to identified odour incidents, e.g. complaints; • an odour prevention and reduction programme designed to identify the source(s); to characterise the contributions of the sources; and to implement prevention and/or reduction measures. <p>Applicability The applicability is restricted to cases where an odour nuisance at sensitive receptors is expected and/or has been substantiated.</p> | | | | | | | | | | | | | | | | | |
| <p>BAT 13: Reducing odour emissions</p> | <p>In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to use one or a combination of the techniques given below.</p> <table border="1"> <thead> <tr> <th></th> <th>Technique</th> <th>Description</th> <th>Applicability</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Minimizing residence times</td> <td>Minimising the residence time of (potentially) odorous waste in storage or in handling systems (e.g. pipes, tanks, containers), in particular under anaerobic conditions. When relevant, adequate provisions are made for the acceptance of seasonal peak volumes of waste.</td> <td>Only applicable to open systems.</td> </tr> <tr> <td>b.</td> <td>Using chemical treatment</td> <td>Using chemicals to destroy or to reduce the formation of odorous compounds (e.g. to oxidise or to precipitate hydrogen sulphide).</td> <td>Not applicable if it may hamper the desired output quality.</td> </tr> <tr> <td>c.</td> <td>Optimizing aerobic treatment</td> <td>In the case of aerobic treatment of water-based liquid waste, it may include: <ul style="list-style-type: none"> • use of pure oxygen; • removal of scum in tanks; • frequent maintenance of the </td> <td>Generally applicable.</td> </tr> </tbody> </table> | | Technique | Description | Applicability | a. | Minimizing residence times | Minimising the residence time of (potentially) odorous waste in storage or in handling systems (e.g. pipes, tanks, containers), in particular under anaerobic conditions. When relevant, adequate provisions are made for the acceptance of seasonal peak volumes of waste. | Only applicable to open systems. | b. | Using chemical treatment | Using chemicals to destroy or to reduce the formation of odorous compounds (e.g. to oxidise or to precipitate hydrogen sulphide). | Not applicable if it may hamper the desired output quality. | c. | Optimizing aerobic treatment | In the case of aerobic treatment of water-based liquid waste, it may include: <ul style="list-style-type: none"> • use of pure oxygen; • removal of scum in tanks; • frequent maintenance of the | Generally applicable. | <p>a. Not applicable. No such odorous materials are brought to the site.</p> <p>b. Not applicable. Only physical processing done on site. Material is transported offsite as soon as possible.</p> <p>c. Not applicable. Only physical processing done on site. Material is transported offsite as soon as possible.</p> |
| | Technique | Description | Applicability | | | | | | | | | | | | | | | |
| a. | Minimizing residence times | Minimising the residence time of (potentially) odorous waste in storage or in handling systems (e.g. pipes, tanks, containers), in particular under anaerobic conditions. When relevant, adequate provisions are made for the acceptance of seasonal peak volumes of waste. | Only applicable to open systems. | | | | | | | | | | | | | | | |
| b. | Using chemical treatment | Using chemicals to destroy or to reduce the formation of odorous compounds (e.g. to oxidise or to precipitate hydrogen sulphide). | Not applicable if it may hamper the desired output quality. | | | | | | | | | | | | | | | |
| c. | Optimizing aerobic treatment | In the case of aerobic treatment of water-based liquid waste, it may include: <ul style="list-style-type: none"> • use of pure oxygen; • removal of scum in tanks; • frequent maintenance of the | Generally applicable. | | | | | | | | | | | | | | | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd | | | | | | | | |
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| | | aeration system. <ul style="list-style-type: none"> In the case of aerobic treatment of waste other than water-based liquid waste, see BAT 36. | | | | | | | | | | |
| BAT 14: Controlling diffuse emissions in air | <p>In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques given below.</p> <p>Depending on the risk posed by the waste in terms of diffuse emissions to air, BAT 14d is especially relevant.</p> | | | <p>a. Implemented on the existing site. Furthermore, material to be used in backfilling will be dampened before being handled on site to minimise dust generation.</p> <p>b. The ZATO crusher and generator are considered as high-integrity equipment. Furthermore, equipment used for backfilling will also be high-integrity type.</p> <p>c. Will be carried out during backfilling operations through selection of clean inert material which is ideal for backfilling operations. Furthermore, it will be ensured that equipment to be used during backfilling has corrosion inhibitors.</p> <p>d. All fine granulation and fine shredding of cables, wires, tyres and soft aluminium and plastics (including</p> | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> <th>Applicability</th> </tr> </thead> <tbody> <tr> <td> a. Minimising the number of potential diffuse emission sources </td> <td> This includes techniques such as: <ul style="list-style-type: none"> appropriate design of piping layout (e.g. minimising pipe run length, reducing the number of flanges and valves, using welded fittings and pipes); favouring the use of gravity transfer rather than using pumps; limiting the drop height of material; limiting traffic speed; using wind barriers. </td> <td> Generally applicable. </td> </tr> <tr> <td> b. Selection and use of high-integrity equipment </td> <td> This includes techniques such as: <ul style="list-style-type: none"> valves with double packing seals or equally efficient equipment; high-integrity gaskets (such as spiral wound, ring joints) for critical applications; </td> <td> Applicability may be restricted in the case of existing plants due to operability requirements. </td> </tr> </tbody> </table> | Technique | Description | | Applicability | a. Minimising the number of potential diffuse emission sources | This includes techniques such as: <ul style="list-style-type: none"> appropriate design of piping layout (e.g. minimising pipe run length, reducing the number of flanges and valves, using welded fittings and pipes); favouring the use of gravity transfer rather than using pumps; limiting the drop height of material; limiting traffic speed; using wind barriers. | Generally applicable. | b. Selection and use of high-integrity equipment | This includes techniques such as: <ul style="list-style-type: none"> valves with double packing seals or equally efficient equipment; high-integrity gaskets (such as spiral wound, ring joints) for critical applications; | Applicability may be restricted in the case of existing plants due to operability requirements. | |
| Technique | Description | Applicability | | | | | | | | | | |
| a. Minimising the number of potential diffuse emission sources | This includes techniques such as: <ul style="list-style-type: none"> appropriate design of piping layout (e.g. minimising pipe run length, reducing the number of flanges and valves, using welded fittings and pipes); favouring the use of gravity transfer rather than using pumps; limiting the drop height of material; limiting traffic speed; using wind barriers. | Generally applicable. | | | | | | | | | | |
| b. Selection and use of high-integrity equipment | This includes techniques such as: <ul style="list-style-type: none"> valves with double packing seals or equally efficient equipment; high-integrity gaskets (such as spiral wound, ring joints) for critical applications; | Applicability may be restricted in the case of existing plants due to operability requirements. | | | | | | | | | | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd |
|---------------|--|--|--|---|
| | | <ul style="list-style-type: none"> pumps/compressors/agitators fitted with mechanical seals instead of packing; magnetically driven pumps/compressors/agitators; appropriate service hose access ports, piercing pliers, drill heads, e.g. when degassing WEEE containing VFCs and/or VHCs. | | <p>plastic from WEEE) is carried out indoors, all of which include dust suppression equipment, including dust filters and dust separators. Shredding of cigarettes, textiles, paper and mattresses is carried out outdoors, under a temporary tent since these do not produce significant amounts of dust. Shredding of aluminium profiles is carried out outdoors but smaller particles are separated by eddy current machine and collected in jumbo bags for recycling. Baling activities are largely carried out outdoors and therefore extractive vent systems are not required. Furthermore, material to be used in backfilling will be dampened before being handled on site to minimise dust generation.</p> <p>e. Will be carried out during backfilling operations. A wheel-washing facility will be included at the border of</p> |
| c. | <p>Corrosion prevention</p> <p>This includes techniques such as:</p> <ul style="list-style-type: none"> appropriate selection of construction materials; lining or coating of equipment and painting of pipes with corrosion inhibitors. | Generally applicable. | | |
| d. | <p>Containment, collection and treatment of diffuse emissions</p> <p>This includes techniques such as:</p> <ul style="list-style-type: none"> storing, treating and handling waste and material that may generate diffuse emissions in enclosed buildings and/or enclosed equipment (e.g. conveyor belts); maintaining the enclosed equipment or buildings under an adequate pressure; collecting and directing the emissions to an appropriate abatement system (see Section 6.1) via an air extraction system and/or air suction systems close to the emission sources. | <p>The use of enclosed equipment or buildings may be restricted by safety considerations such as the risk of explosion or oxygen depletion.</p> <p>The use of enclosed equipment or buildings may also be constrained by the volume of</p> | | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd |
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| | | | waste. | <p>the construction site.</p> <p>f. Implemented. Refer to Sections 4 and 8.</p> <p>g. Implemented.</p> <p>h. Not applicable. Does not take place on site.</p> |
| e. Dampening | Dampening potential sources of diffuse dust emissions (e.g. waste storage, traffic areas, and open handling processes) with water or fog. | Generally applicable. | | |
| f. Maintenance | This includes techniques such as: <ul style="list-style-type: none"> • ensuring access to potentially leaky equipment; • regularly controlling protective equipment such as lamellar curtains, fast-action doors. | Generally applicable. | | |
| g. Cleaning of waste treatment and storage areas | This includes techniques such as regularly cleaning the whole waste treatment area (halls, traffic areas, storage areas, etc.), conveyor belts, equipment and containers. | Generally applicable. | | |
| h. Leak detection and repair (LDAR) programme | See Section 6.2. When emissions of organic compounds are expected, a LDAR programme is set up and implemented using a risk-based approach, considering in particular the design of the plant and the amount and nature of the organic compounds concerned. | Generally applicable. | | |
| BAT 15: Appropriate use of flares | BAT is to use flaring only for safety reasons or for non-routine operating conditions (e.g. start-ups, shutdowns) by using both of the techniques given below. | | | Not applicable. Does not take place on site. |
| Technique | Description | Applicability | | |

| Aspect of BAT | BAT | | | | Status at Metalco Ltd |
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| | a. | Correct plant design | This includes the provision of a gas recovery system with sufficient capacity and the use of high-integrity relief valves. | Generally applicable to new plants. A gas recovery system may be retrofitted in existing plants. | |
| | b. | Plant management | This includes balancing the gas system and using advanced process control. | Generally applicable. | |
| BAT 16: Flare management | In order to reduce emissions to air from flares when flaring is unavoidable, BAT is to use both of the techniques given below. | | | | Not applicable. Does not take place on site. |
| | | Technique | Description | Applicability | |
| a. | Correct design of flaring devices | Optimisation of height and pressure, assistance by steam, air or gas, type of flare tips, etc., to enable smokeless and reliable operation and to ensure the efficient combustion of excess gases. | Generally applicable to new flares. In existing plants, applicability may be restricted, e.g. due to maintenance time availability. | | |
| b. | Monitoring and recording as part of flare management | This includes continuous monitoring of the quantity of gas sent to flaring. It may include estimations of other parameters (e.g. composition of gas flow, heat content, ratio of assistance, velocity, purge gas flow rate, pollutant emissions (e.g. NOX, CO, hydrocarbons), noise). The | Generally applicable. | | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd | | | | | | | | |
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| | | <p>recording of flaring events usually includes the duration and number of events and allows for the quantification of emissions and the potential prevention of future flaring events.</p> | | | | | | | | | | |
| 1.4. Noise and vibrations | | | | | | | | | | | | |
| BAT 17: Noise and vibration emissions | <p>In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to set up, implement and regularly review a noise and vibration management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements:</p> <ul style="list-style-type: none"> I. a protocol containing appropriate actions and timelines; II. a protocol for conducting noise and vibration monitoring; III. a protocol for response to identified noise and vibration events, e.g. complaints; IV. a noise and vibration reduction programme designed to identify the source(s), to measure/estimate noise and vibration exposure, to characterise the contributions of the sources and to implement prevention and/or reduction measures. <p>Applicability The applicability is restricted to cases where a noise or vibration nuisance at sensitive receptors is expected and/or has been substantiated.</p> | | | Implemented. See Section 4. | | | | | | | | |
| BAT 18: Noise and vibration | <p>In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to use one or a combination of the techniques given below.</p> <table border="1"> <thead> <tr> <th></th> <th>Technique</th> <th>Description</th> <th>Applicability</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Appropriate</td> <td>Noise levels can be reduced by</td> <td>For existing plants,</td> </tr> </tbody> </table> | | | | Technique | Description | Applicability | a. | Appropriate | Noise levels can be reduced by | For existing plants, | a. Implemented. Few sensitive receptors are located in the vicinity. Wherever practically feasible, noisy equipment is located within |
| | Technique | Description | Applicability | | | | | | | | | |
| a. | Appropriate | Noise levels can be reduced by | For existing plants, | | | | | | | | | |

| Aspect of BAT | BAT | | | | Status at Metalco Ltd |
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| | | location of equipment and buildings | increasing the distance between the emitter and the receiver, by using buildings as noise screens and by relocating building exits or entrances. | the relocation of equipment and building exits or entrances may be restricted by a lack of space or excessive costs. | buildings. b. Implemented. c. Implemented. d. Not applicable. Does not take place on site. e. Implemented. Wherever practically feasible, noisy equipment is located within buildings. |
| | b. | Operational measures | This includes techniques such as: i. inspection and maintenance of equipment; ii. closing of doors and windows of enclosed areas, if possible; iii. equipment operation by experienced staff; iv. avoidance of noisy activities at night, if possible; v. provisions for noise control during maintenance, traffic, handling and treatment activities. | Generally applicable. | |
| | c. | Low-noise equipment | This may include direct drive motors, compressors, pumps and flares. | | |
| | d. | Noise and vibration control equipment | This includes techniques such as: i. noise reducers; ii. acoustic and vibrational insulation of equipment; iii. enclosure of noisy equipment; iv. soundproofing of buildings. | Applicability may be restricted by a lack of space (for existing plants). | |
| | e. | Noise attenuation | Noise propagation can be reduced by inserting obstacles | Applicable only to existing plants, as the | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd | |
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| | | | <p>between emitters and receivers (e.g. protection walls, embankments and buildings).</p> | <p>design of new plants should make this technique unnecessary. For existing plants, the insertion of obstacles may be restricted by a lack of space.</p> <p>For mechanical treatment in shredders of metal wastes, it is applicable within the constraints associated with the risk of deflagration in shredders.</p> | |
| 1.5. Emissions to water | | | | | |
| BAT 19: Emissions to soil and water | <p>In order to optimise water consumption, to reduce the volume of wastewater generated and to prevent or, where that is not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of the techniques given below.</p> | | | <p>a. Water consumption is reduced whenever possible. Water consumption is monitored on a regular basis using standard water meters. The staff are immediately informed if water consumption is noted to be high.</p> <p>b. Not applicable. Does not take place on site.</p> | |
| | Technique | Description | Applicability | | |
| | a. | Water management | <p>Water consumption is optimised by using measures which may include:</p> <ul style="list-style-type: none"> • water-saving plans (e.g. establishment of water efficiency objectives, flow diagrams and water mass balances); | | Generally applicable. |

| Aspect of BAT | BAT | | | Status at Metalco Ltd |
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| | | <ul style="list-style-type: none"> optimising the use of washing water (e.g. dry cleaning instead of hosing down, using trigger control on all washing equipment); reducing the use of water for vacuum generation (e.g. use of liquid ring pumps with high boiling point liquids). | | <p>c. Implemented. Refer to Section 11.</p> <p>d. Implemented for the liquid decanting and storage areas using bunds which are impermeable and resistant to the hazardous liquids, batteries and all the WEEE components. There is no overflow discharge point in any of the rainwater reservoirs.</p> <p>e. Implemented.</p> <p>f. Not applicable. Does not take place on site.</p> <p>g. Implemented. Refer to Section 12.</p> <p>h. Implemented. All hazardous material is stored within adequately sized bunding.</p> <p>i. Not applicable. Does not take place on site.</p> |
| b. | Water recirculation | Water streams are recirculated within the plant, if necessary after treatment. The degree of recirculation is limited by the water balance of the plant, the content of impurities (e.g. odorous compounds) and/or the characteristics of the water streams (e.g. nutrient content). | Generally applicable. | |
| c. | Impermeable surface | Depending on the risks posed by the waste in terms of soil and/or water contamination, the surface of the whole waste treatment area (e.g. waste reception, handling, storage, treatment and dispatch areas) is made impermeable to the liquids concerned. | Generally applicable. | |
| d. | Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels | Depending on the risks posed by the liquids contained in tanks and vessels in terms of soil and/or water contamination, this includes techniques such as: <ul style="list-style-type: none"> overflow detectors; overflow pipes that are directed to a contained drainage system (i.e. the relevant secondary containment or another vessel); | Generally applicable. | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd | |
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| | | | <ul style="list-style-type: none"> tanks for liquids that are located in a suitable secondary containment; the volume is normally sized to accommodate the loss of containment of the largest tank within the secondary containment; isolation of tanks, vessels and secondary containment (e.g. closing of valves). | | |
| | e. | Roofing of waste storage and treatment areas | Depending on the risks posed by the waste in terms of soil and/or water contamination, waste is stored and treated in covered areas to prevent contact with rainwater and thus minimise the volume of contaminated run-off water. | Applicability may be constrained when high volumes of waste are stored or treated (e.g. mechanical treatment in shredders of metal waste). | |
| | f. | Segregation of water streams | Each water stream (e.g. surface run-off water, process water) is collected and treated separately, based on the pollutant content and on the combination of treatment techniques. In particular, uncontaminated waste water streams are segregated from waste water streams that require treatment. | <p>Generally applicable to new plants.</p> <p>Generally applicable to existing plants within the constraints associated with the layout of the water collection</p> | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd | |
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| | g. | Adequate drainage infrastructure | <p>The waste treatment area is connected to drainage infrastructure.</p> <p>Rainwater falling on the treatment and storage areas is collected in the drainage infrastructure along with washing water, occasional spillages, etc. and, depending on the pollutant content, recirculated or sent for further treatment.</p> | <p>system.</p> <p>Generally applicable to new plants.</p> <p>Generally applicable to existing plants within the constraints associated with the layout of the water drainage system.</p> | |
| | h. | Design and maintenance provisions to allow detection and repair of leaks | <p>Regular monitoring for potential leakages is risk-based, and, when necessary, equipment is repaired.</p> <p>The use of underground components is minimised. When underground components are used, and depending on the risks posed by the waste contained in those components in terms of soil and/or water contamination, secondary containment of underground components is put in place.</p> | <p>The use of above-ground components is generally applicable to new plants. It may be limited however by the risk of freezing.</p> <p>The installation of secondary containment may be limited in the case of existing plants.</p> | |
| | i. | Appropriate | Appropriate buffer storage capacity is | Generally | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd | |
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| | | buffer storage capacity | provided for waste water generated during other than normal operating conditions using a risk-based approach (e.g. taking into account the nature of the pollutants, the effects of downstream waste water treatment, and the receiving environment). The discharge of waste water from this buffer storage is only possible after appropriate measures are taken (e.g. monitor, treat, reuse). | applicable to new plants. For existing plants, applicability may be limited by space availability and by the layout of the water collection system. | |
| BAT 20: Waste water treatment | In order to reduce emissions to water, BAT is to treat waste water using an appropriate combination of the techniques given below. | | | The effluents generated on the site are comprised of rainwater, which is collected into the drainage system. Only trace amounts of contaminants and some solids which are carried by the rainwater are expected. Therefore, oil-water interceptors (c) and silt traps (p) are sufficient to treat the water collected by the system. | |
| Technique (1) | | Typical pollutants targeted | Applicability | | |
| Preliminary and primary treatment, e.g. | | | | | |
| a. | Equalisation | All pollutants | Generally applicable. | | |
| b. | Neutralisation | Acids, alkalis | | | |
| c. | Physical separation, e.g. screens, sieves, grit separators, grease separators, oil-water separation or primary settlement tanks | Gross solids, suspended solids, oil/grease | | | |
| Physico-chemical treatment, e.g. | | | | | |
| d. | Adsorption | Adsorbable | Generally applicable. | | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd |
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| | | | dissolved non-biodegradable or inhibitory pollutants, e.g. hydrocarbons, mercury, AOX | |
| | e. | Distillation/rectification | Dissolved non-biodegradable or inhibitory pollutants that can be distilled, e.g. some solvents | |
| | f. | Precipitation | Precipitable dissolved non-biodegradable or inhibitory pollutants, e.g. metals, phosphorus | |
| | g. | Chemical oxidation | Oxidisable dissolved non-biodegradable or inhibitory pollutants, e.g. nitrite, cyanide | |
| | h. | Chemical reduction | Reducible dissolved non-biodegradable or inhibitory pollutants, e.g. hexavalent chromium (Cr(VI)) | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd | |
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| | i. | Evaporation | Soluble contaminants | | |
| | j. | Ion exchange | Ionic dissolved non- biodegradable or inhibitory pollutants, e.g. metals | | |
| | k. | Stripping | Purgeable pollutants, e.g. hydrogen sulphide (H ₂ S), ammonia (NH ₃), some adsorbable organically bound halogens (AOX), hydrocarbons | | |
| | Biological treatment, e.g. | | | | |
| | l. | Activated sludge process | Biodegradable organic compounds | | Generally applicable. |
| | m | Membrane bioreactor | | | |
| | Nitrogen removal | | | | |
| | n. | Nitrification/denitrification when the treatment includes a biological treatment | Total nitrogen, ammonia | | Nitrification may not be applicable in the case of high chloride concentrations (e.g. above 10 g/l) and when the reduction of the chloride concentration prior to nitrification would not be justified by the environmental benefits. |

| Aspect of BAT | BAT | | | Status at Metalco Ltd | | | | | | | | | | | | | |
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| | | | Nitrification is not applicable when the temperature of the waste water is low (e.g. below 12 °C). | | | | | | | | | | | | | | |
| | Solids removal, e.g. | | | | | | | | | | | | | | | | |
| | o. | Coagulation and flocculation | Suspended solids and particulate-bound metals | | Generally applicable. | | | | | | | | | | | | |
| | p. | Sedimentation | | | | | | | | | | | | | | | |
| | q. | Filtration (e.g. sand filtration, microfiltration, ultrafiltration) | | | | | | | | | | | | | | | |
| | r. | Flotation | | | | | | | | | | | | | | | |
| | (1) The descriptions of the techniques are given in Section 6.3. | | | | | | | | | | | | | | | | |
| | <p>Table 6.1: BAT-associated emission levels (BAT-AELs) for direct discharges to a receiving water body</p> <table border="1"> <thead> <tr> <th>Substance/Parameter</th> <th>BAT-AEL (1)</th> <th>Waste treatment process to which the BAT-AEL applies</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Total organic carbon (TOC) (2)</td> <td>10–60 mg/l</td> <td> <ul style="list-style-type: none"> All waste treatments except treatment of water-based liquid waste </td> </tr> <tr> <td>10–100 mg/l (3) (4)</td> <td> <ul style="list-style-type: none"> Treatment of water-based liquid waste </td> </tr> <tr> <td>Chemical oxygen demand (COD) (2)</td> <td>30–180 mg/l</td> <td> <ul style="list-style-type: none"> All waste treatments except treatment of water-based liquid </td> </tr> </tbody> </table> | | | | | Substance/Parameter | BAT-AEL (1) | Waste treatment process to which the BAT-AEL applies | Total organic carbon (TOC) (2) | 10–60 mg/l | <ul style="list-style-type: none"> All waste treatments except treatment of water-based liquid waste | 10–100 mg/l (3) (4) | <ul style="list-style-type: none"> Treatment of water-based liquid waste | Chemical oxygen demand (COD) (2) | 30–180 mg/l | <ul style="list-style-type: none"> All waste treatments except treatment of water-based liquid | |
| | Substance/Parameter | BAT-AEL (1) | Waste treatment process to which the BAT-AEL applies | | | | | | | | | | | | | | |
| | Total organic carbon (TOC) (2) | 10–60 mg/l | <ul style="list-style-type: none"> All waste treatments except treatment of water-based liquid waste | | | | | | | | | | | | | | |
| 10–100 mg/l (3) (4) | | <ul style="list-style-type: none"> Treatment of water-based liquid waste | | | | | | | | | | | | | | | |
| Chemical oxygen demand (COD) (2) | 30–180 mg/l | <ul style="list-style-type: none"> All waste treatments except treatment of water-based liquid | | | | | | | | | | | | | | | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd |
|---------------|------------------------------|------------------------|--|-----------------------|
| | | | waste | |
| | | 30–300 mg/l (3) (4) | <ul style="list-style-type: none"> • Treatment of water-based liquid waste | |
| | Total suspended solids (TSS) | 5–60 mg/l | <ul style="list-style-type: none"> • All waste treatments | |
| | Hydrocarbon oil index (HOI) | 0.5–10 mg/l | <ul style="list-style-type: none"> • Mechanical treatment in shredders of metal waste • Treatment of WEEE containing VFCs and/or VHCs • Re-refining of waste oil • Physico-chemical treatment of waste with calorific value • Water washing of excavated contaminated soil • Treatment of water-based liquid waste | |
| | Total nitrogen (Total N) | 1–25 mg/l (5) (6) | <ul style="list-style-type: none"> • Biological treatment of waste • Re-refining of waste oil | |
| | | 10–60 mg/l (5) (6) (7) | <ul style="list-style-type: none"> • Treatment of water-based liquid waste | |
| | Total phosphorus (Total P) | 0.3–2 mg/l | <ul style="list-style-type: none"> • Biological treatment of waste | |
| | | 1–3 mg/l (4) | <ul style="list-style-type: none"> • Treatment of water-based liquid waste | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd | |
|---------------------------|---|----------------------------|--|-----------------------|---|
| | Phenol index | 0.05– 0.2 mg/l | <ul style="list-style-type: none"> • Re-refining of waste oil • Physico-chemical treatment of waste with calorific value | | |
| | | 0.05–0.3 mg/l | <ul style="list-style-type: none"> • Treatment of water-based liquid waste | | |
| | Free cyanide (CN-) (8) | 0.02– 0.1 mg/l | <ul style="list-style-type: none"> • Treatment of water-based liquid waste | | |
| | Adsorbable organically bound halogens (AOX) (8) | 0.2–1 mg/l | <ul style="list-style-type: none"> • Treatment of water-based liquid waste | | |
| | Metals and metalloids (8) | Arsenic (expressed as As) | 0.01– 0.05 mg/l | | <ul style="list-style-type: none"> • Mechanical treatment in shredders of metal waste • Treatment of WEEE containing VFCs and/or VHCs • Mechanical biological treatment of waste • Re-refining of waste oil • Physico-chemical treatment of waste with calorific value • Physico-chemical treatment of solid and/or pasty waste • Regeneration of spent solvents • Water washing of excavated contaminated soil |
| | | Cadmium (expressed as Cd) | 0.01– 0.05 mg/l | | |
| | | Chromium (expressed as Cr) | 0.01– 0.15 mg/l | | |
| | | Copper (expressed as Cu) | 0.05–0.5 mg/l | | |
| | | Lead (expressed as Pb) | 0.05–0.1 mg/l (9) | | |
| | | Nickel (expressed as Ni) | 0.05–0.5 mg/l | | |
| Mercury (expressed as Hg) | | 0.5–5 µg/l | | | |

| Aspect of BAT | BAT | | | | Status at Metalco Ltd |
|--|---------------|------------------------|-----------------|---|-----------------------|
| | | Zinc (expressed as Zn) | 0.1–1 mg/l (10) | <ul style="list-style-type: none"> • Treatment of water-based liquid waste | |
| Arsenic (expressed as As) | 0.01–0.1 mg/l | | | | |
| Cadmium (expressed as Cd) | 0.01–0.1 mg/l | | | | |
| Chromium (expressed as Cr) | 0.01–0.3 mg/l | | | | |
| Hexavalent chromium (expressed as Cr(VI)) | 0.01–0.1 mg/l | | | | |
| Copper (expressed as Cu) | 0.05–0.5 mg/l | | | | |
| Lead (expressed as Pb) | 0.05–0.3 mg/l | | | | |
| Nickel (expressed as Ni) | 0.05–1 mg/l | | | | |
| Mercury (expressed as Hg) | 1–10 µg/l | | | | |
| Zinc (expressed as Zn) | 0.1–2 mg/l | | | | |
| The associated monitoring is given in BAT 7. | | | | | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | | | | | | | | | | | | | | | |
|---|--|--|---|--|-----------------------------|-------------|--|------------------------|----------------|---|---|------------|---|---------------------------|---------------------------|----------------|---|---------------------------|----------------|----------------------------|----------------|--------------------------|---------------|--|
| | <p>Table 6.2 : BAT-associated emission levels (BAT-AELs) for indirect discharges to a receiving water body</p> <table border="1"> <thead> <tr> <th>Substance/Parameter</th> <th>BAT-AEL (1) (2)</th> <th>Waste treatment process to which the BAT-AEL applies</th> </tr> </thead> <tbody> <tr> <td>Hydrocarbon oil index (HOI)</td> <td>0.5–10 mg/l</td> <td> <ul style="list-style-type: none"> • Mechanical treatment in shredders of metal waste • Treatment of WEEE containing VFCs and/or VHCs • Re-refining of waste oil • Physico-chemical treatment of waste with calorific value • Water washing of excavated contaminated soil • Treatment of water-based liquid waste </td> </tr> <tr> <td>Free cyanide (CN-) (3)</td> <td>0.02– 0.1 mg/l</td> <td> <ul style="list-style-type: none"> • Treatment of water-based liquid waste </td> </tr> <tr> <td>Adsorbable organically bound halogens (AOX) (3)</td> <td>0.2–1 mg/l</td> <td> <ul style="list-style-type: none"> • Treatment of water-based liquid waste </td> </tr> <tr> <td rowspan="4">Metals and metalloids (3)</td> <td>Arsenic (expressed as As)</td> <td>0.01–0.05 mg/l</td> <td rowspan="4"> <ul style="list-style-type: none"> • Mechanical treatment in shredders of metal waste • Treatment of WEEE containing VFCs and/or VHCs • Mechanical biological treatment of waste • Re-refining of waste oil </td> </tr> <tr> <td>Cadmium (expressed as Cd)</td> <td>0.01–0.05 mg/l</td> </tr> <tr> <td>Chromium (expressed as Cr)</td> <td>0.01–0.15 mg/l</td> </tr> <tr> <td>Copper (expressed as Cu)</td> <td>0.05–0.5 mg/l</td> </tr> </tbody> </table> | Substance/Parameter | BAT-AEL (1) (2) | Waste treatment process to which the BAT-AEL applies | Hydrocarbon oil index (HOI) | 0.5–10 mg/l | <ul style="list-style-type: none"> • Mechanical treatment in shredders of metal waste • Treatment of WEEE containing VFCs and/or VHCs • Re-refining of waste oil • Physico-chemical treatment of waste with calorific value • Water washing of excavated contaminated soil • Treatment of water-based liquid waste | Free cyanide (CN-) (3) | 0.02– 0.1 mg/l | <ul style="list-style-type: none"> • Treatment of water-based liquid waste | Adsorbable organically bound halogens (AOX) (3) | 0.2–1 mg/l | <ul style="list-style-type: none"> • Treatment of water-based liquid waste | Metals and metalloids (3) | Arsenic (expressed as As) | 0.01–0.05 mg/l | <ul style="list-style-type: none"> • Mechanical treatment in shredders of metal waste • Treatment of WEEE containing VFCs and/or VHCs • Mechanical biological treatment of waste • Re-refining of waste oil | Cadmium (expressed as Cd) | 0.01–0.05 mg/l | Chromium (expressed as Cr) | 0.01–0.15 mg/l | Copper (expressed as Cu) | 0.05–0.5 mg/l | |
| Substance/Parameter | BAT-AEL (1) (2) | Waste treatment process to which the BAT-AEL applies | | | | | | | | | | | | | | | | | | | | | | |
| Hydrocarbon oil index (HOI) | 0.5–10 mg/l | <ul style="list-style-type: none"> • Mechanical treatment in shredders of metal waste • Treatment of WEEE containing VFCs and/or VHCs • Re-refining of waste oil • Physico-chemical treatment of waste with calorific value • Water washing of excavated contaminated soil • Treatment of water-based liquid waste | | | | | | | | | | | | | | | | | | | | | | |
| Free cyanide (CN-) (3) | 0.02– 0.1 mg/l | <ul style="list-style-type: none"> • Treatment of water-based liquid waste | | | | | | | | | | | | | | | | | | | | | | |
| Adsorbable organically bound halogens (AOX) (3) | 0.2–1 mg/l | <ul style="list-style-type: none"> • Treatment of water-based liquid waste | | | | | | | | | | | | | | | | | | | | | | |
| Metals and metalloids (3) | Arsenic (expressed as As) | 0.01–0.05 mg/l | <ul style="list-style-type: none"> • Mechanical treatment in shredders of metal waste • Treatment of WEEE containing VFCs and/or VHCs • Mechanical biological treatment of waste • Re-refining of waste oil | | | | | | | | | | | | | | | | | | | | | |
| | Cadmium (expressed as Cd) | 0.01–0.05 mg/l | | | | | | | | | | | | | | | | | | | | | | |
| | Chromium (expressed as Cr) | 0.01–0.15 mg/l | | | | | | | | | | | | | | | | | | | | | | |
| | Copper (expressed as Cu) | 0.05–0.5 mg/l | | | | | | | | | | | | | | | | | | | | | | |

| Aspect of BAT | BAT | | | | Status at Metalco Ltd |
|---------------|---|---|-------------------|---|-----------------------|
| | | Lead (expressed as Pb) | 0.05–0.1 mg/l (4) | <ul style="list-style-type: none"> • Physico-chemical treatment of waste with calorific value • Physico-chemical treatment of solid and/or pasty waste • Regeneration of spent solvents • Water washing of excavated contaminated soil • Treatment of water-based liquid waste | |
| | | Nickel (expressed as Ni) | 0.05–0.5 mg/l | | |
| | | Mercury (expressed as Hg) | 0.5–5 µg/l | | |
| | | Zinc (expressed as Zn) | 0.1–1 mg/l (5) | | |
| | | Arsenic (expressed as As) | 0.01–0.1 mg/l | | |
| | | Cadmium (expressed as Cd) | 0.01–0.1 mg/l | | |
| | | Chromium (expressed as Cr) | 0.01–0.3 mg/l | | |
| | | Hexavalent chromium (expressed as Cr(VI)) | 0.01–0.1 mg/l | | |
| | | Copper (expressed as Cu) | 0.05–0.5 mg/l | | |
| | | Lead (expressed as Pb) | 0.05–0.3 mg/l | | |
| | | Nickel (expressed as Ni) | 0.05–1 mg/l | | |
| | | Mercury (expressed as Hg) | 1–10 µg/l | | |
| | | Zinc (expressed as Zn) | 0.1–2 mg/l | | |
| | <p>(1) The averaging periods are defined in the General considerations.</p> <p>(2) The BAT-AELs may not apply if the downstream waste water treatment plant</p> | | | | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | |
|---|---|-----------------------|-------------|------------------------|---|--|--|---|---|---|
| | <p>abates the pollutants concerned, provided this does not lead to a higher level of pollution in the environment.</p> <p>(3) The BAT-AELs only apply when the substance concerned is identified as relevant in the waste water inventory mentioned in BAT 3.</p> <p>(4) The upper end of the range is 0.3 mg/l for mechanical treatment in shredders of metal waste.</p> <p>(5) The upper end of the range is 2 mg/l for mechanical treatment in shredders of metal waste.</p> <p>The associated monitoring is given in BAT 7.</p> | | | | | | | | | |
| 1.6 Emissions from accidents and incidents | | | | | | | | | | |
| BAT 21: Emissions from accidents and incidents | <p>In order to prevent or limit the environmental consequences of accidents and incidents, BAT is to use all of the techniques given below, as part of the accident management plan (see BAT 1).</p> <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a. Protection measures</td> <td> These include measures such as: <ul style="list-style-type: none"> • protection of the plant against malevolent acts; • fire and explosion protection system, containing equipment for prevention, detection, and extinction; • accessibility and operability of relevant control equipment in emergency situations. </td> </tr> <tr> <td>b. Management of incidental/accidental emissions</td> <td> Procedures are established and technical provisions are in place to manage (in terms of possible containment) emissions from accidents and incidents such as emissions from spillages, firefighting water, or safety valves. </td> </tr> <tr> <td>c. Incident/accident registration and assessment system</td> <td> This includes techniques such as: <ul style="list-style-type: none"> • a log/diary to record all accidents, incidents, changes to procedures and the findings of </td> </tr> </tbody> </table> | Technique | Description | a. Protection measures | These include measures such as: <ul style="list-style-type: none"> • protection of the plant against malevolent acts; • fire and explosion protection system, containing equipment for prevention, detection, and extinction; • accessibility and operability of relevant control equipment in emergency situations. | b. Management of incidental/accidental emissions | Procedures are established and technical provisions are in place to manage (in terms of possible containment) emissions from accidents and incidents such as emissions from spillages, firefighting water, or safety valves. | c. Incident/accident registration and assessment system | This includes techniques such as: <ul style="list-style-type: none"> • a log/diary to record all accidents, incidents, changes to procedures and the findings of | <p>a. Necessary measures to prevent and limit accidents which may have environmental consequences associated with waste treatment operations are taken on site. Appropriate equipment, good inspection and maintenance procedures also prevent accidents.</p> <p>b. Implemented.</p> <p>c. Metalco have a template for recording incidents and corrective action to prevent the reoccurrence of possible incidents.</p> |
| Technique | Description | | | | | | | | | |
| a. Protection measures | These include measures such as: <ul style="list-style-type: none"> • protection of the plant against malevolent acts; • fire and explosion protection system, containing equipment for prevention, detection, and extinction; • accessibility and operability of relevant control equipment in emergency situations. | | | | | | | | | |
| b. Management of incidental/accidental emissions | Procedures are established and technical provisions are in place to manage (in terms of possible containment) emissions from accidents and incidents such as emissions from spillages, firefighting water, or safety valves. | | | | | | | | | |
| c. Incident/accident registration and assessment system | This includes techniques such as: <ul style="list-style-type: none"> • a log/diary to record all accidents, incidents, changes to procedures and the findings of | | | | | | | | | |

| Aspect of BAT | BAT | | Status at Metalco Ltd | | | | | | | | | |
|--|---|--|---|-----------|-------------|----|------------------------|--|----|----------------|--|---|
| | | inspections; <ul style="list-style-type: none"> procedures to identify, respond to and learn from such incidents and accidents. | | | | | | | | | | |
| 1.7. Material efficiency | | | | | | | | | | | | |
| BAT 22: Using materials efficiently | <p>In order to use materials efficiently, BAT is to substitute materials with waste.</p> <p>Description Waste is used instead of other materials for the treatment of wastes (e.g. waste alkalis or waste acids are used for pH adjustment, fly ashes are used as binders).</p> <p>Applicability Some applicability limitations derive from the risk of contamination posed by the presence of impurities (e.g. heavy metals, POPs, salts, pathogens) in the waste that substitutes other materials. Another limitation is the compatibility of the waste substituting other materials with the waste input (see BAT 2).</p> | | <p>As outlined in Section 5.6 of the Form C report, the main raw materials processed on site are waste materials produced elsewhere. Only diesel, hydraulic oil and engine oil are additional raw materials, which cannot originate from waste.</p> | | | | | | | | | |
| 1.8 Energy efficiency | | | | | | | | | | | | |
| BAT 23: Energy efficiency | <p>In order to use energy efficiently, BAT is to use both of the techniques given below.</p> <table border="1"> <thead> <tr> <th></th> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Energy efficiency plan</td> <td>An energy efficiency plan entails defining and calculating the specific energy consumption of the activity (or activities), setting key performance indicators on an annual basis (for example, specific energy consumption expressed in kWh/tonne of waste processed) and planning periodic improvement targets and related actions. The plan is adapted to the specificities of the waste treatment in terms of process(es) carried out, waste stream(s) treated, etc.</td> </tr> <tr> <td>b.</td> <td>Energy balance</td> <td>An energy balance record provides a breakdown of the</td> </tr> </tbody> </table> | | | Technique | Description | a. | Energy efficiency plan | An energy efficiency plan entails defining and calculating the specific energy consumption of the activity (or activities), setting key performance indicators on an annual basis (for example, specific energy consumption expressed in kWh/tonne of waste processed) and planning periodic improvement targets and related actions. The plan is adapted to the specificities of the waste treatment in terms of process(es) carried out, waste stream(s) treated, etc. | b. | Energy balance | An energy balance record provides a breakdown of the | <p>a. Implemented. Refer to Section 7.</p> <p>b. Implemented. Refer to Section 7.</p> |
| | Technique | Description | | | | | | | | | | |
| a. | Energy efficiency plan | An energy efficiency plan entails defining and calculating the specific energy consumption of the activity (or activities), setting key performance indicators on an annual basis (for example, specific energy consumption expressed in kWh/tonne of waste processed) and planning periodic improvement targets and related actions. The plan is adapted to the specificities of the waste treatment in terms of process(es) carried out, waste stream(s) treated, etc. | | | | | | | | | | |
| b. | Energy balance | An energy balance record provides a breakdown of the | | | | | | | | | | |

| Aspect of BAT | BAT | | Status at Metalco Ltd |
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| | record | <p>energy consumption and generation (including exportation) by the type of source (i.e. electricity, gas, conventional liquid fuels, conventional solid fuels, and waste). This includes:</p> <ul style="list-style-type: none"> i. information on energy consumption in terms of delivered energy; ii. information on energy exported from the installation; iii. energy flow information (e.g. Sankey diagrams or energy balances) showing how the energy is used throughout the process. <p>The energy balance record is adapted to the specificities of the waste treatment in terms of process(es) carried out, waste stream(s) treated, etc.</p> | |
| 1.9 Reuse of packaging | | | |
| BAT 24: Reuse of packaging | <p>In order to reduce the quantity of waste sent for disposal, BAT is to maximise the reuse of packaging, as part of the residues management plan (see BAT 1).</p> <p>Description Packaging (drums, containers, IBCs, pallets, etc.) is reused for containing waste, when it is in good condition and sufficiently clean, depending on a compatibility check between the substances contained (in consecutive uses). If necessary, packaging is sent for appropriate treatment prior to reuse (e.g. reconditioning, cleaning).</p> <p>Applicability Some applicability restrictions derive from the risk of contamination of the waste posed by the reused packaging.</p> | | Implemented. The packaging is reused. |
| 2. BAT conclusions for the mechanical treatment of waste | | | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | | | | | | | | | |
|--|---|---|---|-------------|---------------|----|---------|---|-----------------------|----|---------------|------------------|---|----|---------------|------------------|-----------------------|---|
| <p>Unless otherwise stated, the BAT conclusions presented in Section 2 apply to the mechanical treatment of waste when it is not combined with biological treatment, and in addition to the general BAT conclusions in Section 1.</p> | | | | | | | | | | | | | | | | | | |
| <p>2.1 General BAT conclusions for the mechanical treatment of waste</p> | | | | | | | | | | | | | | | | | | |
| <p>BAT 25: Emissions to air</p> | <p>In order to reduce emissions to air of dust, and of particulate-bound metals, PCDD/F and dioxin-like PCBs, BAT is to apply BAT 14d and to use one or a combination of the techniques given below.</p> <table border="1"> <thead> <tr> <th></th> <th>Technique</th> <th>Description</th> <th>Applicability</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Cyclone</td> <td>See Section 6.1. Cyclones are mainly used as preliminary separators for coarse dust.</td> <td>Generally applicable.</td> </tr> <tr> <td>b.</td> <td>Fabric filter</td> <td>See Section 6.1.</td> <td>May not be applicable to exhaust air ducts directly connected to the shredder when the effects of deflagration on the fabric filter cannot be mitigated (e.g. by using pressure relief valves).</td> </tr> <tr> <td>c.</td> <td>Wet scrubbing</td> <td>See Section 6.1.</td> <td>Generally applicable.</td> </tr> </tbody> </table> | | Technique | Description | Applicability | a. | Cyclone | See Section 6.1. Cyclones are mainly used as preliminary separators for coarse dust. | Generally applicable. | b. | Fabric filter | See Section 6.1. | May not be applicable to exhaust air ducts directly connected to the shredder when the effects of deflagration on the fabric filter cannot be mitigated (e.g. by using pressure relief valves). | c. | Wet scrubbing | See Section 6.1. | Generally applicable. | <p>The granulometer, shredders and new ZATO crusher are fitted with dust filters which are changed on a regular basis, as outlined in Table 19 and Appendix VII of the Form C report. The aluminium shredder has an eddy current separator which separates non-ferrous metals from the material. Shearers only cut material into large pieces and therefore do not require filters.</p> <p>The AEL is expected to be approximately 2 mg/Nm³.</p> |
| | Technique | Description | Applicability | | | | | | | | | | | | | | | |
| a. | Cyclone | See Section 6.1. Cyclones are mainly used as preliminary separators for coarse dust. | Generally applicable. | | | | | | | | | | | | | | | |
| b. | Fabric filter | See Section 6.1. | May not be applicable to exhaust air ducts directly connected to the shredder when the effects of deflagration on the fabric filter cannot be mitigated (e.g. by using pressure relief valves). | | | | | | | | | | | | | | | |
| c. | Wet scrubbing | See Section 6.1. | Generally applicable. | | | | | | | | | | | | | | | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd | | | | | | |
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| | d. Water injection into the shredder | The waste to be shredded is damped by injecting water into the shredder. The amount of water injected is regulated in relation to the amount of waste being shredded (which may be monitored via the energy consumed by the shredder motor). The waste gas that contains residual dust is directed to cyclone(s) and/or a wet scrubber. | Only applicable within the constraints associated with local conditions (e.g. low temperature, drought). | | | | | | | |
| <p>Table 6.3 : BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from the mechanical treatment of waste</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Unit</th> <th>BAT-AEL (Average over the sampling period)</th> </tr> </thead> <tbody> <tr> <td>Dust</td> <td>mg/Nm³</td> <td>2–5 (1)</td> </tr> </tbody> </table> <p>(1) When a fabric filter is not applicable, the upper end of the range is 10 mg/Nm³.</p> <p>The associated monitoring is given in BAT 8.</p> | | | | | Parameter | Unit | BAT-AEL (Average over the sampling period) | Dust | mg/Nm ³ | 2–5 (1) |
| Parameter | Unit | BAT-AEL (Average over the sampling period) | | | | | | | | |
| Dust | mg/Nm ³ | 2–5 (1) | | | | | | | | |
| <p>2.2 BAT conclusions for the mechanical treatment in shredders of metal waste</p> | | | | | | | | | | |
| <p>Unless otherwise stated, the BAT conclusions presented in this section apply to the mechanical treatment in shredders of metal waste, in addition to BAT 25.</p> | | | | | | | | | | |
| <p>BAT 26: Overall environmental performance</p> | <p>In order to improve the overall environmental performance, and to prevent emissions due to accidents and incidents, BAT is to use BAT 14g and all of the techniques given below:</p> <ul style="list-style-type: none"> a. implementation of a detailed inspection procedure for baled waste before shredding; b. removal of dangerous items from the waste input stream and their safe | | | <ul style="list-style-type: none"> a. Implemented b. Implemented c. Not applicable. Does not take place on site. | | | | | | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | | | | | |
|---|--|---|-------------|---------------|--|---|------------------------------|-----------------------------------|--|--|-------------------------|--|---|---|
| | <p>disposal (e.g. gas cylinders, non-depolluted ELVs, non-depolluted WEEE, items contaminated with PCBs or mercury, radioactive items);</p> <p>c. treatment of containers only when accompanied by a declaration of cleanliness.</p> | | | | | | | | | | | | | |
| <p>BAT 27: Deflagrations</p> | <p>In order to prevent deflagrations and to reduce emissions when deflagrations occur, BAT is to use technique a. and one or both of the techniques b. and c. given below.</p> <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> <th>Applicability</th> </tr> </thead> <tbody> <tr> <td> <p>a. Deflagration management plan</p> </td> <td> <p>This includes:</p> <ul style="list-style-type: none"> • a deflagration reduction programme designed to identify the source(s), and to implement measures to prevent deflagrations occurrences, e.g. inspection of waste input as described in BAT 26a, removal of dangerous items as described in BAT 26b; • a review of historical deflagration incidents and remedies and the dissemination of deflagration knowledge; • a protocol for response to deflagration incidents. </td> <td> <p>Generally applicable.</p> </td> </tr> <tr> <td> <p>b. Pressure relief dampers</p> </td> <td> <p>Pressure relief dampers are installed to relieve pressure waves coming from deflagrations that would otherwise cause major damage and subsequent emissions.</p> </td> <td></td> </tr> <tr> <td> <p>c. Pre-shredding</p> </td> <td> <p>Use of a low-speed shredder installed upstream of the main shredder</p> </td> <td> <p>Generally applicable for new plants,</p> </td> </tr> </tbody> </table> | Technique | Description | Applicability | <p>a. Deflagration management plan</p> | <p>This includes:</p> <ul style="list-style-type: none"> • a deflagration reduction programme designed to identify the source(s), and to implement measures to prevent deflagrations occurrences, e.g. inspection of waste input as described in BAT 26a, removal of dangerous items as described in BAT 26b; • a review of historical deflagration incidents and remedies and the dissemination of deflagration knowledge; • a protocol for response to deflagration incidents. | <p>Generally applicable.</p> | <p>b. Pressure relief dampers</p> | <p>Pressure relief dampers are installed to relieve pressure waves coming from deflagrations that would otherwise cause major damage and subsequent emissions.</p> | | <p>c. Pre-shredding</p> | <p>Use of a low-speed shredder installed upstream of the main shredder</p> | <p>Generally applicable for new plants,</p> | <p>Standard operating procedures which are implemented during the daily operations of the site are sufficient to minimise the likelihood of deflagrations. The materials are all separated into their respective waste streams. Nevertheless, the ZATO crusher does include a pre-shredder which further reduces the likelihood of deflagrations.</p> <p>Additionally, any hazardous and/or potentially combustible materials (including gases) are stored and processed indoors to protect against deflagrations. All personnel are trained to deal with deflagration if it occurs. No deflagrations have ever occurred on site during its three decades of operation.</p> |
| Technique | Description | Applicability | | | | | | | | | | | | |
| <p>a. Deflagration management plan</p> | <p>This includes:</p> <ul style="list-style-type: none"> • a deflagration reduction programme designed to identify the source(s), and to implement measures to prevent deflagrations occurrences, e.g. inspection of waste input as described in BAT 26a, removal of dangerous items as described in BAT 26b; • a review of historical deflagration incidents and remedies and the dissemination of deflagration knowledge; • a protocol for response to deflagration incidents. | <p>Generally applicable.</p> | | | | | | | | | | | | |
| <p>b. Pressure relief dampers</p> | <p>Pressure relief dampers are installed to relieve pressure waves coming from deflagrations that would otherwise cause major damage and subsequent emissions.</p> | | | | | | | | | | | | | |
| <p>c. Pre-shredding</p> | <p>Use of a low-speed shredder installed upstream of the main shredder</p> | <p>Generally applicable for new plants,</p> | | | | | | | | | | | | |

| Aspect of BAT | BAT | | Status at Metalco Ltd | | | | | | |
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| | | <p>depending on the input material. Applicable for major plant upgrades where a significant number of deflagrations have been substantiated.</p> | | | | | | | |
| <p>BAT 28: Energy efficiency</p> | <p>In order to use energy efficiently, BAT is to keep the shredder feed stable.</p> <p>Description The shredder feed is equalised by avoiding disruption or overload of the waste feed which would lead to unwanted shutdowns and start-ups of the shredder.</p> | | <p>Implemented.</p> | | | | | | |
| <p>2.3 BAT conclusions for the treatment of WEEE containing VFCs and/or VHCs</p> | | | | | | | | | |
| <p>Unless otherwise stated, the BAT conclusions presented in this section apply to the treatment of WEEE containing VFCs and/or VHCs, in addition to BAT 25.</p> | | | | | | | | | |
| <p>BAT 29: Emissions to air</p> | <p>In order to prevent or, where that is not practicable, to reduce emissions of organic compounds to air, BAT is to apply BAT 14d, BAT 14h and to use technique a. and one or both of the techniques b. and c. given below.</p> <table border="1"> <thead> <tr> <th></th> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Optimised removal and capture of refrigerants and oils</td> <td> <p>All refrigerants and oils are removed from the WEEE containing VFCs and/or VHCs and captured by a vacuum suction system (e.g. achieving refrigerant removal of at least 90 %). Refrigerants are separated from oils and the oils are degassed. The amount of oil remaining in the compressor is reduced to a minimum (so that the compressor does not drip).</p> </td> </tr> </tbody> </table> | | | Technique | Description | a. | Optimised removal and capture of refrigerants and oils | <p>All refrigerants and oils are removed from the WEEE containing VFCs and/or VHCs and captured by a vacuum suction system (e.g. achieving refrigerant removal of at least 90 %). Refrigerants are separated from oils and the oils are degassed. The amount of oil remaining in the compressor is reduced to a minimum (so that the compressor does not drip).</p> | <p>Not applicable. Does not take place on site.</p> |
| | Technique | Description | | | | | | | |
| a. | Optimised removal and capture of refrigerants and oils | <p>All refrigerants and oils are removed from the WEEE containing VFCs and/or VHCs and captured by a vacuum suction system (e.g. achieving refrigerant removal of at least 90 %). Refrigerants are separated from oils and the oils are degassed. The amount of oil remaining in the compressor is reduced to a minimum (so that the compressor does not drip).</p> | | | | | | | |

| Aspect of BAT | BAT | | Status at Metalco Ltd | | | | | | | |
|---------------------------|---|--|-----------------------|-------------|------|--|---|--------------------|------|------|
| | b. Cryogenic condensation | Waste gas containing organic compounds such as VFCs/VHCs is sent to a cryogenic condensation unit where they are liquefied (see description in Section 6.1). The liquefied gas is stored in pressurised vessels for further treatment. | | | | | | | | |
| | c. Adsorption | Waste gas containing organic compounds such as VFCs/VHCs is led into adsorption systems (see description in Section 6.1). The spent activated carbon is regenerated by means of heated air pumped into the filter to desorb the organic compounds. Subsequently, the regeneration waste gas is compressed and cooled in order to liquefy the organic compounds (in some cases by cryogenic condensation). The liquefied gas is then stored in pressurised vessels. The remaining waste gas from the compression stage is usually led back into the adsorption system in order to minimise VFC/VHC emissions. | | | | | | | | |
| | <p>Table 6.4 : BAT-associated emission levels (BAT-AELs) for channelled TVOC and CFC emissions to air from the treatment of WEEE containing VFCs and/or VHCs</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Unit</th> <th>BAT-AEL (Average over the sampling period)</th> </tr> </thead> <tbody> <tr> <td>TVOC</td> <td>mg/Nm³</td> <td>3–15</td> </tr> <tr> <td>CFCs</td> <td>mg/Nm³</td> <td>0.5–10</td> </tr> </tbody> </table> <p>The associated monitoring is given in BAT 8.</p> | | | Parameter | Unit | BAT-AEL (Average over the sampling period) | TVOC | mg/Nm ³ | 3–15 | CFCs |
| Parameter | Unit | BAT-AEL (Average over the sampling period) | | | | | | | | |
| TVOC | mg/Nm ³ | 3–15 | | | | | | | | |
| CFCs | mg/Nm ³ | 0.5–10 | | | | | | | | |
| BAT 30: Explosions | <p>In order to prevent emissions due to explosions when treating WEEE containing VFCs and/or VHCs, BAT is to use either of the techniques given below.</p> <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table> | | Technique | Description | | | Not applicable. The conditions for explosions are unlikely. | | | |
| Technique | Description | | | | | | | | | |
| | | | | | | | | | | |

| Aspect of BAT | BAT | | Status at Metalco Ltd |
|---------------|-----|--|-----------------------|
| | a. | Inert atmosphere By injecting inert gas (e.g. nitrogen), the oxygen concentration in enclosed equipment (e.g. in enclosed shredders, crushers, dust and foam collectors) is reduced (e.g. to 4 vol-%). | |
| | b. | Forced ventilation By using forced ventilation, the hydrocarbon concentration in enclosed equipment (e.g. in enclosed shredders, crushers, dust and foam collectors) is reduced to < 25 % of the lower explosive limit. | |

2.4 BAT conclusions for the mechanical treatment of waste with calorific value

In addition to BAT 25, the BAT conclusions presented in this section apply to the mechanical treatment of waste with calorific value covered by points 5.3(a)(iii) and 5.3(b)(ii) of Annex I to Directive 2010/75/EU.

| BAT 31: Emissions to air | In order to reduce emissions to air of organic compounds, BAT is to apply BAT 14d and to use one or a combination of the techniques given below. | | Wood is shredded using a heavy rasper under a temporary tent located outdoors. Since this machinery does not produce significant amounts of dust, this is considered sufficient. No other waste with calorific value is brought to the site. | | | | | |
|---------------------------------|---|--|---|--|---------------|--------------------|--------------|----------------------|
| | <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a. Adsorption</td> <td rowspan="4">See Section 6.1.</td> </tr> <tr> <td>b. Biofilter</td> </tr> <tr> <td>c. Thermal oxidation</td> </tr> <tr> <td>d. Wet scrubbing</td> </tr> </tbody> </table> | Technique | | Description | a. Adsorption | See Section 6.1. | b. Biofilter | c. Thermal oxidation |
| Technique | Description | | | | | | | |
| a. Adsorption | See Section 6.1. | | | | | | | |
| b. Biofilter | | | | | | | | |
| c. Thermal oxidation | | | | | | | | |
| d. Wet scrubbing | | | | | | | | |
| | Table 6.5: BAT-associated emission level (BAT-AEL) for channelled TVOC emissions to air from the mechanical treatment of waste with calorific value | | | | | | | |
| | <table border="1"> <thead> <tr> <th>Parameter</th> <th>Unit</th> <th>BAT-AEL (Average over the sampling period)</th> </tr> </thead> <tbody> <tr> <td>TVOC</td> <td>mg/Nm³</td> <td>10–30 (1)</td> </tr> </tbody> </table> | Parameter | Unit | BAT-AEL (Average over the sampling period) | TVOC | mg/Nm ³ | 10–30 (1) | |
| Parameter | Unit | BAT-AEL (Average over the sampling period) | | | | | | |
| TVOC | mg/Nm ³ | 10–30 (1) | | | | | | |
| | (1) The BAT-AEL only applies when organic compounds are identified as relevant in the waste gas stream, based on the inventory mentioned in BAT 3. | | | | | | | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | |
|--|---|--|------|--|--------------|--------------------|-----|---|
| | The associated monitoring is given in BAT 8. | | | | | | | |
| 2.5. BAT conclusions for the mechanical treatment of WEEE containing mercury | | | | | | | | |
| Unless otherwise stated, the BAT conclusions presented in this section apply to the mechanical treatment of WEEE containing mercury, in addition to BAT 25. | | | | | | | | |
| BAT 32: Emissions to air | <p>In order to reduce mercury emissions to air, BAT is to collect mercury emissions at source, to send them to abatement and to carry out adequate monitoring.</p> <p>Description This includes all of the following measures:</p> <ul style="list-style-type: none"> • equipment used to treat WEEE containing mercury is enclosed, under negative pressure and connected to a local exhaust ventilation (LEV) system; • waste gas from the processes is treated by dedusting techniques such as cyclones, fabric filters, and HEPA filters, followed by adsorption on activated carbon (see Section 6.1); • the efficiency of the waste gas treatment is monitored; • mercury levels in the treatment and storage areas are measured frequently (e.g. once every week) to detect potential mercury leaks. <p>Table 6.6: BAT-associated emission level (BAT-AEL) for channelled mercury emissions to air from the mechanical treatment of WEEE containing mercury</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Unit</th> <th>BAT-AEL (Average over the sampling period)</th> </tr> </thead> <tbody> <tr> <td>Mercury (Hg)</td> <td>µg/Nm³</td> <td>2–7</td> </tr> </tbody> </table> <p>The associated monitoring is given in BAT 8.</p> | Parameter | Unit | BAT-AEL (Average over the sampling period) | Mercury (Hg) | µg/Nm ³ | 2–7 | <p>Not applicable. Does not take place on site.</p> |
| Parameter | Unit | BAT-AEL (Average over the sampling period) | | | | | | |
| Mercury (Hg) | µg/Nm ³ | 2–7 | | | | | | |
| 3. BAT conclusions for the biological treatment of waste | | | | | | | | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | | | | | | | | |
|--|---|---|-----------|-------------|----|------------|------------------|----|-----------|---|----|---------------|---|----|---------|------------------|---|
| <p>Unless otherwise stated, the BAT conclusions presented in Section 3 apply to the biological treatment of waste, and in addition to the general BAT conclusions in Section 1. The BAT conclusions in Section 3 do not apply to the treatment of water-based liquid waste.</p> <p>3.1. General BAT conclusions for the biological treatment of waste</p> | | | | | | | | | | | | | | | | | |
| <p>BAT 33: Reducing odour emissions and improving environmental performance</p> | <p>In order to reduce odour emissions and to improve the overall environmental performance, BAT is to select the waste input.</p> <p>Description The technique consists of carrying out the pre-acceptance, acceptance and sorting of the waste input (see BAT 2) so as to ensure the suitability of the waste input for the waste treatment, e.g. in terms of nutrient balance, moisture or toxic compounds which may reduce the biological activity.</p> | <p>Not applicable. Does not take place on site.</p> | | | | | | | | | | | | | | | |
| <p>BAT 34: Reducing channelled emissions to air of dust, organic compounds and odorous compounds</p> | <p>In order to reduce channelled emissions to air of dust, organic compounds and odorous compounds, including H₂S and NH₃, BAT is to use one or a combination of the techniques given below.</p> <table border="1"> <thead> <tr> <th></th> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Adsorption</td> <td>See Section 6.1.</td> </tr> <tr> <td>b.</td> <td>Biofilter</td> <td>See Section 6.1. A pretreatment of the waste gas before the biofilter (e.g. with a water or acid scrubber) may be needed in the case of a high NH₃ content (e.g. 5– 40 mg/Nm³) in order to control the media pH and to limit the formation of N₂ O in the biofilter. Some other odorous compounds (e.g. mercaptans, H₂ S) can cause acidification of the biofilter media and necessitate the use of a water or alkaline scrubber for pretreatment of the waste gas before the biofilter.</td> </tr> <tr> <td>c.</td> <td>Fabric filter</td> <td>See Section 6.1. The fabric filter is used in the case of mechanical biological treatment of waste.</td> </tr> <tr> <td>d.</td> <td>Thermal</td> <td>See Section 6.1.</td> </tr> </tbody> </table> | | Technique | Description | a. | Adsorption | See Section 6.1. | b. | Biofilter | See Section 6.1. A pretreatment of the waste gas before the biofilter (e.g. with a water or acid scrubber) may be needed in the case of a high NH ₃ content (e.g. 5– 40 mg/Nm ³) in order to control the media pH and to limit the formation of N ₂ O in the biofilter. Some other odorous compounds (e.g. mercaptans, H ₂ S) can cause acidification of the biofilter media and necessitate the use of a water or alkaline scrubber for pretreatment of the waste gas before the biofilter. | c. | Fabric filter | See Section 6.1. The fabric filter is used in the case of mechanical biological treatment of waste. | d. | Thermal | See Section 6.1. | <p>Not applicable. Does not take place on site.</p> |
| | Technique | Description | | | | | | | | | | | | | | | |
| a. | Adsorption | See Section 6.1. | | | | | | | | | | | | | | | |
| b. | Biofilter | See Section 6.1. A pretreatment of the waste gas before the biofilter (e.g. with a water or acid scrubber) may be needed in the case of a high NH ₃ content (e.g. 5– 40 mg/Nm ³) in order to control the media pH and to limit the formation of N ₂ O in the biofilter. Some other odorous compounds (e.g. mercaptans, H ₂ S) can cause acidification of the biofilter media and necessitate the use of a water or alkaline scrubber for pretreatment of the waste gas before the biofilter. | | | | | | | | | | | | | | | |
| c. | Fabric filter | See Section 6.1. The fabric filter is used in the case of mechanical biological treatment of waste. | | | | | | | | | | | | | | | |
| d. | Thermal | See Section 6.1. | | | | | | | | | | | | | | | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd | |
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| | | oxidation | | | |
| | e. | Wet scrubbing | See Section 6.1. Water, acid or alkaline scrubbers are used in combination with a biofilter, thermal oxidation or adsorption on activated carbon. | | |
| | Table 6.7: BAT-associated emission levels (BAT-AELs) for channelled NH ₃ , odour, dust and TVOC emissions to air from the biological treatment of waste | | | | |
| | Parameter | Unit | BAT-AEL (Average over the sampling period) | Waste treatment process | |
| | NH ₃ (1) (2) Odour concentration (1) (2) Dust TVOC | mg/Nm ³ ouE /Nm ³ mg/Nm ³ mg/Nm ³ | 0.3–20 200–1000 2–5 5–40 (3) | All biological treatments of waste Mechanical biological treatment of waste | |
| (1) Either the BAT-AEL for NH ₃ or the BAT-AEL for the odour concentration applies. (2) This BAT-AEL does not apply to the treatment of waste mainly composed of manure. (3) The lower end of the range can be achieved by using thermal oxidation. | | | | | |
| The associated monitoring is given in BAT 8. | | | | | |
| BAT 35: Emissions to water and water usage | In order to reduce the generation of waste water and to reduce water usage, BAT is to use all of the techniques given below. | | | Not applicable. Does not take place on site. | |
| Technique | Description | Applicability | | | |
| a. Segregation of water streams | Leachate seeping from compost piles and windrows is segregated from surface run-off water (see BAT 19f). | Generally applicable to new plants. | | | |

| Aspect of BAT | BAT | | | Status at Metalco Ltd | |
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| | | | | Generally applicable to existing plants within the constraints associated with the layout of the water circuits. | |
| | b. | Water recirculation | Recirculating process water streams (e.g. from dewatering of liquid digestate in anaerobic processes) or using as much as possible other water streams (e.g. water condensate, rinsing water, surface run-off water). The degree of recirculation is limited by the water balance of the plant, the content of impurities (e.g. heavy metals, salts, pathogens, odorous compounds) and/or the characteristics of the water streams (e.g. nutrient content). | Generally applicable. | |
| | c. | Minimisation of the generation of leachate | Optimising the moisture content of the waste in order to minimise the generation of leachate. | Generally applicable. | |
| 3.2 BAT conclusions for the aerobic treatment of waste | | | | | |
| Unless otherwise stated, the BAT conclusions presented in this section apply to the aerobic treatment of waste, and in addition to the general BAT conclusions for the biological treatment of waste in Section 3.1 | | | | | |
| BAT 36: Overall | In order to reduce emissions to air and to improve the overall environmental | | | Not applicable. Does not take | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | | | | | |
|---|---|---|-----------------------|-------------|---------------|----|--------------------------------------|--|-----------------------|----|---|---|----------------------|---|
| environmental performance | <p>performance, BAT is to monitor and/or control the key waste and process parameters.</p> <p>Description Monitoring and/or control of key waste and process parameters, including:</p> <ul style="list-style-type: none"> • waste input characteristics (e.g. C to N ratio, particle size); • temperature and moisture content at different points in the windrow; • aeration of the windrow (e.g. via the windrow turning frequency, O₂ and/or CO₂); • concentration in the windrow, temperature of air streams in the case of forced aeration); • windrow porosity, height and width. <p>Applicability Monitoring of the moisture content in the windrow is not applicable to enclosed processes when health and/or safety issues have been identified. In that case, the moisture content can be monitored before loading the waste into the enclosed composting stage and adjusted when it exits the enclosed composting stage.</p> | <p>place on site.</p> | | | | | | | | | | | | |
| BAT 37: Odour and diffuse emissions to air | <p>In order to reduce diffuse emissions to air of dust, odour and bioaerosols from open-air treatment steps, BAT is to use one or both of the techniques given below.</p> <table border="1"> <thead> <tr> <th></th> <th>Technique</th> <th>Description</th> <th>Applicability</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Use of semipermeable membrane covers</td> <td>Active composting windrows are covered by semipermeable membranes.</td> <td>Generally applicable.</td> </tr> <tr> <td>b.</td> <td>Adaptation of operations to the meteorological conditions</td> <td>This includes techniques such as the following: <ul style="list-style-type: none"> • Taking into account weather conditions and forecasts when </td> <td>Generally applicable</td> </tr> </tbody> </table> | | Technique | Description | Applicability | a. | Use of semipermeable membrane covers | Active composting windrows are covered by semipermeable membranes. | Generally applicable. | b. | Adaptation of operations to the meteorological conditions | This includes techniques such as the following: <ul style="list-style-type: none"> • Taking into account weather conditions and forecasts when | Generally applicable | <p>Not applicable. Does not take place on site.</p> |
| | Technique | Description | Applicability | | | | | | | | | | | |
| a. | Use of semipermeable membrane covers | Active composting windrows are covered by semipermeable membranes. | Generally applicable. | | | | | | | | | | | |
| b. | Adaptation of operations to the meteorological conditions | This includes techniques such as the following: <ul style="list-style-type: none"> • Taking into account weather conditions and forecasts when | Generally applicable | | | | | | | | | | | |

| Aspect of BAT | BAT | Status at Metalco Ltd |
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| | <p>undertaking major outdoor process activities. For instance, avoiding formation or turning of windrows or piles, screening or shredding in the case of adverse meteorological conditions in terms of emissions dispersion (e.g. the wind speed is too low or too high, or the wind blows in the direction of sensitive receptors).</p> <ul style="list-style-type: none"> • Orientating windrows, so that the smallest possible area of composting mass is exposed to the prevailing wind, to reduce the dispersion of pollutants from the windrow surface. The windrows and piles are preferably located at the lowest elevation within the overall site layout. | |
| 3.3 BAT conclusions for the anaerobic treatment of waste | | |
| BAT 38: Reducing emissions to air and improving the overall environmental performance | <p>In order to reduce emissions to air and to improve the overall environmental performance, BAT is to monitor and/or control the key waste and process parameters.</p> <p>Description Implementation of a manual and/or automatic monitoring system to:</p> <ul style="list-style-type: none"> • ensure a stable digester operation; • minimise operational difficulties, such as foaming, which may lead to odour emissions; • provide sufficient early warning of system failures which may lead to a loss of | <p>Not applicable. Does not take place on site.</p> |

| Aspect of BAT | BAT | Status at Metalco Ltd |
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| | <p>containment and explosions.</p> <p>This includes monitoring and/or control of key waste and process parameters, e.g.:</p> <ul style="list-style-type: none"> • pH and alkalinity of the digester feed; • digester operating temperature; • hydraulic and organic loading rates of the digester feed; • concentration of volatile fatty acids (VFA) and ammonia within the digester and digestate; • biogas quantity, composition (e.g. H₂S) and pressure; • liquid and foam levels in the digester. | |

3.4 BAT conclusions for the mechanical biological treatment (MBT) of waste

Unless otherwise stated, the BAT conclusions presented in this section apply to MBT, and in addition to the general BAT conclusions for the biological treatment of waste in Section 3.1.

The BAT conclusions for the aerobic treatment (Section 3.2) and anaerobic treatment (Section 3.3) of waste apply, when relevant, to the mechanical biological treatment of waste.

| | | | | |
|---------------------------------|--|--|---|--|
| BAT 39: Emissions to air | In order to reduce emissions to air, BAT is to use both of the techniques given below. | | | Not applicable. Does not take place on site. |
| | Technique | Description | Applicability | |
| | a. | Segregation of the waste gas streams | <p>Splitting of the total waste gas stream into waste gas streams with a high pollutant content and waste gas streams with a low pollutant content, as identified in the inventory mentioned in BAT 3.</p> <p>Generally applicable to new plants.</p> <p>Generally applicable to existing plants within the constraints associated with the layout of the air</p> | |
| b. | Recirculation of waste gas | Recirculation of waste gas with a low pollutant content in the | | |

| Aspect of BAT | BAT | Status at Metalco Ltd |
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| | <p>biological process followed by waste gas treatment adapted to the concentration of pollutants (see BAT 34). The use of waste gas in the biological process may be limited by the waste gas temperature and/or the pollutant content. It may be necessary to condense the water vapour contained in the waste gas before reuse. In this case, cooling is necessary, and the condensed water is recirculated when possible (see BAT 35) or treated before discharge.</p> | circuits. |

4. BAT conclusions for the physico-chemical treatment of waste

Unless otherwise stated, the BAT conclusions presented in Section 4 apply to the physico-chemical treatment of waste, and in addition to the general BAT conclusions in Section 1.

4.1. BAT conclusions for the physico-chemical treatment of solid and/or pasty waste

| | | |
|--|---|--|
| BAT 40: Overall environmental performance | <p>In order to improve the overall environmental performance, BAT is to monitor the waste input as part of the waste pre-acceptance and acceptance procedures (see BAT 2).</p> <p>Description Monitoring the waste input, e.g. in terms of:</p> <ul style="list-style-type: none"> • content of organics, oxidising agents, metals (e.g. mercury), salts, odorous compounds; | Not applicable. Does not take place on site. |
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| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | | | | | | | | | |
|--|--|--|-------------|----|------------|----|-----------|----|---------------|----|---------------|-----------|------|--|------|--------------------|-----|--|
| | <ul style="list-style-type: none"> H₂ formation potential upon mixing of flue-gas treatment residues, e.g. fly ashes, with water. | | | | | | | | | | | | | | | | | |
| BAT 41: Emissions to air (Dust, organic compounds and NH₃) | <p>In order to reduce emissions of dust, organic compounds and NH₃ to air, BAT is to apply BAT 14d and to use one or a combination of the techniques given below.</p> <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Adsorption</td> </tr> <tr> <td>b.</td> <td>Biofilter</td> </tr> <tr> <td>c.</td> <td>Fabric filter</td> </tr> <tr> <td>d.</td> <td>Wet scrubbing</td> </tr> </tbody> </table> <p>Table 6.8: BAT-associated emission level (BAT-AEL) for channelled emissions of dust to air from the physico-chemical treatment of solid and/or pasty waste</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Unit</th> <th>BAT-AEL (Average over the sampling period)</th> </tr> </thead> <tbody> <tr> <td>Dust</td> <td>mg/Nm³</td> <td>2–5</td> </tr> </tbody> </table> <p>The associated monitoring is given in BAT 8.</p> | Technique | Description | a. | Adsorption | b. | Biofilter | c. | Fabric filter | d. | Wet scrubbing | Parameter | Unit | BAT-AEL (Average over the sampling period) | Dust | mg/Nm ³ | 2–5 | Not applicable. Does not take place on site. |
| Technique | Description | | | | | | | | | | | | | | | | | |
| a. | Adsorption | | | | | | | | | | | | | | | | | |
| b. | Biofilter | | | | | | | | | | | | | | | | | |
| c. | Fabric filter | | | | | | | | | | | | | | | | | |
| d. | Wet scrubbing | | | | | | | | | | | | | | | | | |
| Parameter | Unit | BAT-AEL (Average over the sampling period) | | | | | | | | | | | | | | | | |
| Dust | mg/Nm ³ | 2–5 | | | | | | | | | | | | | | | | |
| 4.2 BAT conclusions for the re-refining of waste oil | | | | | | | | | | | | | | | | | | |
| BAT 42: Overall environmental performance | <p>In order to improve the overall environmental performance, BAT is to monitor the waste input as part of the waste pre-acceptance and acceptance procedures (see BAT 2).</p> <p>Description Monitoring of the waste input in terms of content of chlorinated compounds (e.g. chlorinated solvents or PCBs).</p> | Not applicable. Does not take place on site. | | | | | | | | | | | | | | | | |
| BAT 43: Reducing the quantity of waste sent for | <p>In order to reduce the quantity of waste sent for disposal, BAT is to use one or both of the techniques given below.</p> | Not applicable. Does not take place on site. | | | | | | | | | | | | | | | | |

| Aspect of BAT | BAT | | Status at Metalco Ltd | | | | | | | | | | | | | |
|---|--|---|--|---|-------------|-------------|-------------------|--|------------------|-----------------|---|---|-------------------|---------------|------------------|--|
| disposal | <table border="1"> <thead> <tr> <th></th> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Material recovery</td> <td>Using the organic residues from vacuum distillation, solvent extraction, thin film evaporators, etc. in asphalt products, etc.</td> </tr> <tr> <td>b.</td> <td>Energy recovery</td> <td>Using the organic residues from vacuum distillation, solvent extraction, thin film evaporators, etc. to recover energy.</td> </tr> </tbody> </table> | | | Technique | Description | a. | Material recovery | Using the organic residues from vacuum distillation, solvent extraction, thin film evaporators, etc. in asphalt products, etc. | b. | Energy recovery | Using the organic residues from vacuum distillation, solvent extraction, thin film evaporators, etc. to recover energy. | | | | | |
| | | Technique | Description | | | | | | | | | | | | | |
| | a. | Material recovery | Using the organic residues from vacuum distillation, solvent extraction, thin film evaporators, etc. in asphalt products, etc. | | | | | | | | | | | | | |
| b. | Energy recovery | Using the organic residues from vacuum distillation, solvent extraction, thin film evaporators, etc. to recover energy. | | | | | | | | | | | | | | |
| BAT 44: Emissions of organic compounds to air | In order to reduce emissions of organic compounds to air, BAT is to apply BAT 14d and to use one or a combination of the techniques given below. | | Not applicable. Does not take place on site. | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th></th> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Adsorption</td> <td>See Section 6.1.</td> </tr> <tr> <td>b.</td> <td>Thermal oxidation</td> <td>See Section 6.1. This includes when the waste gas is sent to a process furnace or a boiler.</td> </tr> <tr> <td>c.</td> <td>Wet scrubbing</td> <td>See Section 6.1.</td> </tr> </tbody> </table> | | | | Technique | Description | a. | Adsorption | See Section 6.1. | b. | Thermal oxidation | See Section 6.1. This includes when the waste gas is sent to a process furnace or a boiler. | c. | Wet scrubbing | See Section 6.1. | |
| | | Technique | | Description | | | | | | | | | | | | |
| | a. | Adsorption | | See Section 6.1. | | | | | | | | | | | | |
| | b. | Thermal oxidation | | See Section 6.1. This includes when the waste gas is sent to a process furnace or a boiler. | | | | | | | | | | | | |
| c. | Wet scrubbing | See Section 6.1. | | | | | | | | | | | | | | |
| The BAT-AEL set in Section 4.5 applies. The associated monitoring is given in BAT 8. | | | | | | | | | | | | | | | | |
| 4.3 BAT conclusions for the physico-chemical treatment of waste with calorific value | | | | | | | | | | | | | | | | |
| BAT 45: Reducing emissions of organic compounds to air | In order to reduce emissions of organic compounds to air, BAT is to apply BAT 14d and to use one or a combination of the techniques given below. | | Not applicable. Does not take place on site. | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th></th> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Adsorption</td> <td rowspan="4">See Section 6.1</td> </tr> <tr> <td>b.</td> <td>Cryogenic condensation</td> </tr> <tr> <td>c.</td> <td>Thermal oxidation</td> </tr> <tr> <td>d.</td> <td>Wet scrubbing</td> </tr> </tbody> </table> | | | | Technique | Description | a. | Adsorption | See Section 6.1 | b. | Cryogenic condensation | c. | Thermal oxidation | d. | Wet scrubbing | |
| | | Technique | | Description | | | | | | | | | | | | |
| | a. | Adsorption | | See Section 6.1 | | | | | | | | | | | | |
| | b. | Cryogenic condensation | | | | | | | | | | | | | | |
| c. | Thermal oxidation | | | | | | | | | | | | | | | |
| d. | Wet scrubbing | | | | | | | | | | | | | | | |
| The BAT-AEL set in Section 4.5 applies. The associated monitoring is given in BAT 8. | | | | | | | | | | | | | | | | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | | | | | |
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| 4.4 BAT conclusions for the regeneration of spent solvents | | | | | | | | | | | | | | |
| BAT 46: Overall environmental performance of the regeneration of spent solvents | <p>In order to improve the overall environmental performance of the regeneration of spent solvents, BAT is to use one or both of the techniques given below.</p> <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> <th>Applicability</th> </tr> </thead> <tbody> <tr> <td>a. Material recovery</td> <td>Solvents are recovered from the distillation residues by evaporation.</td> <td>Applicability may be restricted when the energy demand is excessive with regards to the quantity of solvent recovered.</td> </tr> <tr> <td>b. Energy recovery</td> <td>The residues from distillation are used to recover energy.</td> <td>Generally applicable.</td> </tr> </tbody> </table> | Technique | Description | Applicability | a. Material recovery | Solvents are recovered from the distillation residues by evaporation. | Applicability may be restricted when the energy demand is excessive with regards to the quantity of solvent recovered. | b. Energy recovery | The residues from distillation are used to recover energy. | Generally applicable. | Not applicable. Does not take place on site. | | | |
| Technique | Description | Applicability | | | | | | | | | | | | |
| a. Material recovery | Solvents are recovered from the distillation residues by evaporation. | Applicability may be restricted when the energy demand is excessive with regards to the quantity of solvent recovered. | | | | | | | | | | | | |
| b. Energy recovery | The residues from distillation are used to recover energy. | Generally applicable. | | | | | | | | | | | | |
| BAT 47: Reducing emissions of organic compounds to air | <p>In order to reduce emissions of organic compounds to air, BAT is to apply BAT 14d and to use a combination of the techniques given below.</p> <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> <th>Applicability</th> </tr> </thead> <tbody> <tr> <td>a. Recirculation of process off-gases in a steam boiler</td> <td>The process off-gases from the condensers are sent to the steam boiler supplying the plant.</td> <td>May not be applicable to the treatment of halogenated solvent wastes, in order to avoid generating and emitting PCBs and/or PCDD/F.</td> </tr> <tr> <td>b. Adsorption</td> <td>See Section 6.1.</td> <td>There may be limitations to the applicability of the technique due to safety reasons (e.g. activated carbon beds tend to self-ignite when loaded with ketones).</td> </tr> <tr> <td>c. Thermal oxidation</td> <td>See Section 6.1.</td> <td>May not be applicable to the treatment of halogenated solvent</td> </tr> </tbody> </table> | Technique | Description | Applicability | a. Recirculation of process off-gases in a steam boiler | The process off-gases from the condensers are sent to the steam boiler supplying the plant. | May not be applicable to the treatment of halogenated solvent wastes, in order to avoid generating and emitting PCBs and/or PCDD/F. | b. Adsorption | See Section 6.1. | There may be limitations to the applicability of the technique due to safety reasons (e.g. activated carbon beds tend to self-ignite when loaded with ketones). | c. Thermal oxidation | See Section 6.1. | May not be applicable to the treatment of halogenated solvent | Not applicable. Does not take place on site. |
| Technique | Description | Applicability | | | | | | | | | | | | |
| a. Recirculation of process off-gases in a steam boiler | The process off-gases from the condensers are sent to the steam boiler supplying the plant. | May not be applicable to the treatment of halogenated solvent wastes, in order to avoid generating and emitting PCBs and/or PCDD/F. | | | | | | | | | | | | |
| b. Adsorption | See Section 6.1. | There may be limitations to the applicability of the technique due to safety reasons (e.g. activated carbon beds tend to self-ignite when loaded with ketones). | | | | | | | | | | | | |
| c. Thermal oxidation | See Section 6.1. | May not be applicable to the treatment of halogenated solvent | | | | | | | | | | | | |

| Aspect of BAT | BAT | | | | Status at Metalco Ltd | | | | | | | | |
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| | | | | wastes, in order to avoid generating and emitting PCBs and/or PCDD/F. | | | | | | | | | |
| | d. | Condensation or cryogenic condensation | See Section 6.1. | Generally applicable. | | | | | | | | | |
| | e. | Wet scrubbing | See Section 6.1. | Generally applicable. | | | | | | | | | |
| | The BAT-AEL set in Section 4.5 applies. The associated monitoring is given in BAT 8. | | | | | | | | | | | | |
| 4.5 BAT-AEL for emissions of organic compounds to air from the re-refining of waste oil, the physico-chemical treatment of waste with calorific value and the regeneration of spent solvents | | | | | | | | | | | | | |
| Table 6.9: BAT-associated emission level (BAT-AEL) for channelled emissions of TVOC to air from the re-refining of waste oil, the physico-chemical treatment of waste with calorific value and the regeneration of spent solvents | | | | Not applicable. Does not take place on site. | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Parameter</th> <th>Unit</th> <th colspan="2">BAT-AEL (1) (Average over the sampling period)</th> </tr> </thead> <tbody> <tr> <td>TVOC</td> <td>Mg/Nm³</td> <td colspan="2">5-30</td> </tr> </tbody> </table> <p>(1) The BAT-AEL does not apply when the emission load is below 2 kg/h at the emission point provided that no CMR substances are identified as relevant in the waste gas streams, based on the inventory mentioned in BAT 3.</p> | | | | | | Parameter | Unit | BAT-AEL (1) (Average over the sampling period) | | TVOC | Mg/Nm ³ | 5-30 | |
| Parameter | Unit | BAT-AEL (1) (Average over the sampling period) | | | | | | | | | | | |
| TVOC | Mg/Nm ³ | 5-30 | | | | | | | | | | | |
| 4.6 BAT conclusions for the thermal treatment of spent activated carbon, waste catalysts and excavated contaminated soil | | | | | | | | | | | | | |
| BAT 48: Overall environmental performance of the thermal treatment of spent activated carbon, waste catalysts and | In order to improve the overall environmental performance of the thermal treatment of spent activated carbon, waste catalysts and excavated contaminated soil, BAT is to use all of the techniques given below. | | | | Not applicable. Does not take place on site. | | | | | | | | |
| | Technique | | Description | Applicability | | | | | | | | | |
| | a. | Heat recovery from the furnace off-gas | Recovered heat may be used, for example, | Generally applicable. | | | | | | | | | |

| Aspect of BAT | BAT | | | | Status at Metalco Ltd |
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| excavated contaminated soil | | | for preheating of combustion air or for the generation of steam, which is also used in the reactivation of the spent activated carbon. | | |
| | b. | Indirectly fired furnace | An indirectly fired furnace is used to avoid contact between the contents of the furnace and the flue-gases from the burner(s). | Indirectly fired furnaces are normally constructed with a metal tube and applicability may be restricted due to corrosion problems. There may be also economic Restrictions for retrofitting existing plants. | |
| | c. | Process-integrated techniques to reduce emissions to air | This includes techniques such as: <ul style="list-style-type: none"> • control of the furnace temperature and of the rotation speed of the rotary furnace; • choice of fuel; • use of a sealed furnace or operation of the | Generally applicable. | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | | | | | |
|---|---|--|-------------|--|--|-------------------------------------|------------------|------------------|------------------|---------------|-----------------|--------------------------|--|---|
| | <table border="1"> <tr> <td></td> <td></td> <td>furnace at a reduced pressure to avoid diffuse emissions to air.</td> <td></td> </tr> </table> | | | furnace at a reduced pressure to avoid diffuse emissions to air. | | | | | | | | | | |
| | | furnace at a reduced pressure to avoid diffuse emissions to air. | | | | | | | | | | | | |
| BAT 49: Reducing emissions of HCl, HF, dust and organic compounds to air | <p>In order to reduce emissions of HCl, HF, dust and organic compounds to air, BAT is to apply BAT 14d and to use one or a combination of the techniques given below.</p> <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a. Cyclone</td> <td>See Section 6.1. The technique is used in combination with further abatement techniques.</td> </tr> <tr> <td>b. Electrostatic precipitator (ESP)</td> <td rowspan="5">See Section 6.1.</td> </tr> <tr> <td>c. Fabric filter</td> </tr> <tr> <td>d. Wet scrubbing</td> </tr> <tr> <td>e. Adsorption</td> </tr> <tr> <td>f. Condensation</td> </tr> <tr> <td>g. Thermal oxidation (1)</td> <td> <p>(1) Thermal oxidation is carried out with a minimum temperature of 1 100 °C and a two-second residence time for the regeneration of activated carbon used in industrial applications where refractory halogenated or other thermally resistant substances are likely to be present. In the case of activated carbon used for potable water- and food-grade applications, an afterburner with a minimum heating temperature of 850 °C and a two-second residence time is sufficient (see Section 6.1).</p> </td> </tr> </tbody> </table> <p>The associated monitoring is given in BAT 8.</p> | Technique | Description | a. Cyclone | See Section 6.1. The technique is used in combination with further abatement techniques. | b. Electrostatic precipitator (ESP) | See Section 6.1. | c. Fabric filter | d. Wet scrubbing | e. Adsorption | f. Condensation | g. Thermal oxidation (1) | <p>(1) Thermal oxidation is carried out with a minimum temperature of 1 100 °C and a two-second residence time for the regeneration of activated carbon used in industrial applications where refractory halogenated or other thermally resistant substances are likely to be present. In the case of activated carbon used for potable water- and food-grade applications, an afterburner with a minimum heating temperature of 850 °C and a two-second residence time is sufficient (see Section 6.1).</p> | <p>Not applicable. Does not take place on site.</p> |
| Technique | Description | | | | | | | | | | | | | |
| a. Cyclone | See Section 6.1. The technique is used in combination with further abatement techniques. | | | | | | | | | | | | | |
| b. Electrostatic precipitator (ESP) | See Section 6.1. | | | | | | | | | | | | | |
| c. Fabric filter | | | | | | | | | | | | | | |
| d. Wet scrubbing | | | | | | | | | | | | | | |
| e. Adsorption | | | | | | | | | | | | | | |
| f. Condensation | | | | | | | | | | | | | | |
| g. Thermal oxidation (1) | <p>(1) Thermal oxidation is carried out with a minimum temperature of 1 100 °C and a two-second residence time for the regeneration of activated carbon used in industrial applications where refractory halogenated or other thermally resistant substances are likely to be present. In the case of activated carbon used for potable water- and food-grade applications, an afterburner with a minimum heating temperature of 850 °C and a two-second residence time is sufficient (see Section 6.1).</p> | | | | | | | | | | | | | |
| 4.7 BAT conclusions for the water washing of excavated contaminated soil | | | | | | | | | | | | | | |
| BAT 50: Reducing emissions of dust | <p>In order to reduce emissions of dust and organic compounds to air from the storage, handling, and washing steps, BAT is to apply BAT 14d and to use one</p> | <p>Not applicable. Does not take place on site.</p> | | | | | | | | | | | | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | |
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| and organic compounds to air from the storage, handling, and washing steps | <p>or a combination of the techniques given below.</p> <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Adsorption</td> </tr> <tr> <td>b.</td> <td>Fabric filter</td> </tr> <tr> <td>c.</td> <td>Wet scrubbing</td> </tr> </tbody> </table> <p>The associated monitoring is given in BAT 8.</p> | Technique | Description | a. | Adsorption | b. | Fabric filter | c. | Wet scrubbing | |
| Technique | Description | | | | | | | | | |
| a. | Adsorption | | | | | | | | | |
| b. | Fabric filter | | | | | | | | | |
| c. | Wet scrubbing | | | | | | | | | |
| 4.8 BAT conclusions for the decontamination of equipment containing PCBs | | | | | | | | | | |
| BAT 51: Improving the overall environmental performance and reducing channelled emissions of PCBs and organic compounds to air | <p>In order to improve the overall environmental performance and to reduce channelled emissions of PCBs and organic compounds to air, BAT is to use all of the techniques given below.</p> <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Coating of the storage and treatment areas</td> </tr> <tr> <td>b.</td> <td>Implementation of staff access rules to prevent dispersion of contamination</td> </tr> <tr> <td>c.</td> <td>Optimised equipment cleaning and drainage</td> </tr> </tbody> </table> | Technique | Description | a. | Coating of the storage and treatment areas | b. | Implementation of staff access rules to prevent dispersion of contamination | c. | Optimised equipment cleaning and drainage | <ol style="list-style-type: none"> a. The floor is comprised of an impermeable hard standing floor with an underlying plastic layer to further ensure containment. b. Implemented. Storage and treatment areas for equipment with PCBs will be locked for competent staff-only access. Changing rooms will also be provided. c. Implemented. Equipment is drained appropriately. Since the equipment is used on a daily basis, cleaning of some equipment (such as air braces which are nevertheless serviced every day) is not considered feasible. d. All activities which may produce atmospheric |
| Technique | Description | | | | | | | | | |
| a. | Coating of the storage and treatment areas | | | | | | | | | |
| b. | Implementation of staff access rules to prevent dispersion of contamination | | | | | | | | | |
| c. | Optimised equipment cleaning and drainage | | | | | | | | | |

| Aspect of BAT | BAT | | Status at Metalco Ltd |
|---------------|--|--|--|
| | | emptying and (dis)connecting the vacuum vessel; <ul style="list-style-type: none"> • a long period of drainage (at least 12 hours) is ensured to avoid any dripping of contaminated liquid during further treatment operations, after the separation of the core from the casing of an electrical transformer. | emissions are carried out indoors. The vacuum pumps used on site do not produce any exhaust, and therefore do not require treatment. Air quality monitoring is implemented as part of the IPPC permit conditions. <ul style="list-style-type: none"> e. Implemented. The parts which are not hazardous (such as plastic, glass, etc.) are removed first to minimise the likelihood of contamination. Any materials which are contaminated are sent for incineration. f. Implemented. |
| d. | Control and monitoring of emissions to air | This includes techniques such as: <ul style="list-style-type: none"> • the air of the decontamination area is collected and treated with activated carbon filters; • the exhaust of the vacuum pump mentioned in technique c. above is connected to an end-of-pipe abatement system (e.g. a high-temperature incinerator, thermal oxidation or adsorption on activated carbon); • the channelled emissions are monitored (see BAT 8); • the potential atmospheric deposition of PCBs is monitored (e.g. through physico-chemical measurements or biomonitoring). | |
| e. | Disposal of waste treatment residues | This includes techniques such as: <ul style="list-style-type: none"> • porous, contaminated parts of the electrical transformer (wood and paper) are sent to high- temperature incineration; • PCBs in the oils are destroyed (e.g. dechlorination, hydrogenation, solvated electron processes, high-temperature incineration). | |
| f. | Recovery of solvent when solvent | Organic solvent is collected and distilled to be reused in the process. | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | | | |
|--|--|---|-----------------|----|------------|----|-----------|----|-------------------|----|---------------|--|
| | <table border="1"> <tr> <td></td> <td>washing is used</td> <td></td> </tr> </table> <p>The associated monitoring is given in BAT 8.</p> | | washing is used | | | | | | | | | |
| | washing is used | | | | | | | | | | | |
| 5. BAT conclusions for the treatment of water-based liquid waste | | | | | | | | | | | | |
| <p>Unless otherwise stated, the BAT conclusions presented in Section 5 apply to the treatment of water-based liquid waste, and in addition to the general BAT conclusions in Section 1.</p> | | | | | | | | | | | | |
| 5.1 Overall environmental performance | | | | | | | | | | | | |
| BAT 52: Improving the overall environmental performance | <p>In order to improve the overall environmental performance, BAT is to monitor the waste input as part of the waste pre-acceptance and acceptance procedures (see BAT 2).</p> <p>Description</p> <p>Monitoring the waste input, e.g. in terms of:</p> <ul style="list-style-type: none"> • bioeliminability (e.g. BOD, BOD to COD ratio, Zahn-Wellens test, biological inhibition potential (e.g. inhibition of activated sludge)); • feasibility of emulsion breaking, e.g. by means of laboratory-scale tests. | <p>Not applicable. Does not take place on site.</p> | | | | | | | | | | |
| 5.2 Emissions to air | | | | | | | | | | | | |
| BAT 53: Reducing emissions of HCl, NH₃ and organic compounds to air | <p>In order to reduce emissions of HCl, NH₃ and organic compounds to air, BAT is to apply BAT 14d and to use one or a combination of the techniques given below.</p> <table border="1"> <thead> <tr> <th>Technique</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Adsorption</td> </tr> <tr> <td>b.</td> <td>Biofilter</td> </tr> <tr> <td>c.</td> <td>Thermal oxidation</td> </tr> <tr> <td>d.</td> <td>Wet scrubbing</td> </tr> </tbody> </table> <p>Table 6.10: BAT-associated emission levels (BAT-AELs) for channelled emissions of HCl and TVOC to air from the treatment of water-based liquid</p> | Technique | Description | a. | Adsorption | b. | Biofilter | c. | Thermal oxidation | d. | Wet scrubbing | <p>Not applicable. Does not take place on site.</p> |
| Technique | Description | | | | | | | | | | | |
| a. | Adsorption | | | | | | | | | | | |
| b. | Biofilter | | | | | | | | | | | |
| c. | Thermal oxidation | | | | | | | | | | | |
| d. | Wet scrubbing | | | | | | | | | | | |

| Aspect of BAT | BAT | Status at Metalco Ltd | | | | | | | | |
|-------------------------|--|--|------|--|-------------------------|--------------------|-----|------|----------|--|
| | <p>waste</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Unit</th> <th>BAT-AEL (1) (Average over the sampling period)</th> </tr> </thead> <tbody> <tr> <td>Hydrogen chloride (HCl)</td> <td rowspan="2">mg/Nm³</td> <td>1–5</td> </tr> <tr> <td>TVOC</td> <td>3–20 (2)</td> </tr> </tbody> </table> <p>(1) These BAT-AELs only apply when the substance concerned is identified as relevant in the waste gas stream, based on the inventory mentioned in BAT 3. (2) The upper end of the range is 45 mg/Nm³ when the emission load is below 0.5 kg/h at the emission point.</p> <p>The associated monitoring is given in BAT 8.</p> | Parameter | Unit | BAT-AEL (1) (Average over the sampling period) | Hydrogen chloride (HCl) | mg/Nm ³ | 1–5 | TVOC | 3–20 (2) | |
| Parameter | Unit | BAT-AEL (1) (Average over the sampling period) | | | | | | | | |
| Hydrogen chloride (HCl) | mg/Nm ³ | 1–5 | | | | | | | | |
| TVOC | | 3–20 (2) | | | | | | | | |

Appendix VI

**The Environmental Risk Assessment Report and the Risk
Assessment Report**

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QORMI, QRM 2339
MALTA

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T: +356 2733 4472
E: INFO@ECLCE.COM

15th May 2020

The Chairman Malta REWS

Site Details

Location: Metalco Ltd,
Sqaq il-fdal tal-hadid,
Luqa, Malta
Subject: Risk Assessment Report

Applicant Details

Applicant: Mr. Matthew Fenech Magrin
Mob No: +356 7905 3463

Architect Details

Architect: Mr. Mark Abela
Contact No.: +356 2733 4472

ECL CONSULTING ENGINEERS

ING. JOHAN ALOISIO
WARRANT NR: 759

+356 9986 8828 E: JA@ECLCE.COM

Dear Sir,

We refer to the proposed development in caption previously, design being submitted by Architect Mr. Mark Abela on behalf of the client, Mr. Matthew Fenech Magrin, below please find our comments and recommendations.

ECL CONSULTING ENGINEERS
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1.0 Objective

The scope of this risk assessment report is to identify or confirm the activities involving the process of recycling aluminium, steel, copper, rubber and iron and other typical items that are processed within the same premises such as doors, windows, chairs, railings, electrical cables, electronic equipment etc.

However, no cars or items that can explode or overspill fuel or oils are processed within this premises. Hence the risks and hazards that are characterised within this area are not more than a normal workshop.

2.0 Environmentally Related Incidents Action Plan

2.1 *Soaps Area*

Since there are other items such as shampoos, and washing liquids the premises are to be equipped with a spillage containment kit to assist in the collection and removal of the liquid. However these items are processed in a segregated area within the yard, and this area has a designated impervious cesspit below ground level which also acts as a bund.

2.2 *All Other Areas*

Within all the other areas, to further minimise the risks, all liquids that fall within this site are directed towards two in no. 460L oil interceptors through floor drains and relevant pipework. These oil interceptors are Class I polyethylene hydrocarbon decanter-separators and comply with *EN 858-1* and *EN 858-2* standards.

All interceptors compartments are easily accessed for inspections and maintenance and the waste water treatment takes place in two phases:

- Settling of sludge and sand in the decanter sand trap compartment
- Separation of oil and hydrocarbons through the coalescing effect

Through the oil separators, no oil will be transferred to the main cesspit but it will be contained within the oil separators, which will be retrieved by an authorized waste carrier when required.

The discharge of these oil interceptors is directed towards cesspits with physical dimensions that conform to Schedule 1 Activity 43 of *Legal Notice 106 of 2007*, hence avoiding any possible penetration to the groundwater water table.

Water collected is used for cleaning purposes only. Relevant reservoirs have been re-tested and positive results tests were obtained.

2.3 Registered Borehole

The existing registered borehole is not being used anymore and it has been sealed and covered appropriately.

2.4 Action plan in case of failure of Abatement Equipment

In case the systems in 2.1 & 2.2 fail, the responsible person is to inform the CPD for assistance immediately on **112**.



3.0 Fire Breakout Emergency Plan

In the event of a fire breakout within any part of the premises, the following procedure is to be executed:

1. If a person identifies a fire breakout, he should signal a fire alarm condition by using the closest manual call point. The fire detection system dialler will automatically inform the Fire Brigade that a fire breakout condition exists. Another separate notification call to the same Fire Brigade on telephone number **112** should be carried out for re-assurance.
2. If the person that identifies the outbreak is not competent to extinguish the fire, this person should immediately evacuate the area and inform the competent person to extinguish the fire. A good number of fire extinguishers are available on site together with a pressurized hose reel for fire suppression.
3. If the fire is not controlled he is to inform the workers to keep calm and that an evacuation procedure should start and immediately evacuate the site and direct themselves towards the nearest fire assembly point outside of the premises.
4. The appointed competent persons should assist in the evacuation of all workers in the yard, before the fire brigade arrives.
5. When the fire brigade arrive they will instruct and evacuate the workers using their own standard procedure and finally check that all workers and staff have been evacuated.

This procedure is to be printed installed throughout strategic locations within the premises.

4.0 Relevant Environmental Incidents Actions

As previously stated, the risks that fuel spillage occur within this premises is brought to a minimum. However, since generators, fuel tanks and heavy commercial vehicles operate within this area, a minimum risk that fuel spillage occurs, is present. In case that this occurs, the following action plan should be followed:

1. The responsible person or Maintenance Contractor should be informed to

investigate the case.

2. If the case is real, inform immediately the Water Services Corporation on telephone number 8007 2222 and inform them about the situation stating the location and the name of the responsible person.
3. Inform relevant authorised person to recover the fuel.

5.0 Site Equipment

Diesel fuel tanks which are factory certified and include a 110% bund for protection in the case of a spill are present within the premises. The secondary storage facility DOES NOT have a dispenser and is registered with REWS. No lubricating oils are available on site.

6.0 International Standards References

- BS EN 124:1994 - *Gully tops and manhole tops for vehicular and pedestrian areas – Design requirements, type testing, marking, quality control*
- BS EN 858-1:2002 Incorporating Amendment No. 1 - *Separator systems for light liquids (e.g. oil and petrol) – Part 1: Principles of product design, performance and testing, marking and quality Control.*
- BS EN 858-2:2003 - *Separator systems for light liquids (e.g. oil and petrol) – Part 2: Selection of nominal size, installation, operation and maintenance.*
- BS EN 12285-1: 2003 - *Workshop Fabricated Steel Tanks – Part 1: Horizontal cylindrical single skin and double skin tanks for the underground storage of flammable and non-flammable water polluting liquids.*
- PPG3, Pollution Prevention Guidelines - *Use and Design of Oil Separators in Surface Water Drainage Systems.*

7.0 Conclusion

We trust the above is in line with your requirements, and should you require any further clarifications, please do not hesitate to contact us.

Regards



Ing. Johan Aloisio
Warrant No. 759



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15th May 2020

The Chairman Malta REWS

Site Details

Location: Metalco Ltd,
Sqaq il-fdal tal-hadid,
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Subject: Environmental Risk Assessment Report

Applicant Details

Applicant: Mr. Matthew Fenech Magrin
Mob No: +356 7905 3463

Architect Details

Architect: Mr. Mark Abela
Contact No.: +356 2733 4472

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Dear Sir,

We refer to the proposed development in caption previously, design being submitted by Architect Mr. Mark Abela on behalf of the client, Mr. Matthew Fenech Magrin, below please find our comments and recommendations.

1.0 Objective

The scope of this environmental risk assessment report is to identify or confirm the activities involving the use and production or release of relevant hazardous substances in order to prevent and tackle potential soil and ground water contamination from such substances and establish whether a baseline report is required.

2.0 Site Purpose & Working Procedures

2.1 *Stage 1: Site Operations*

The sites are operating as a scrap yard and buy used materials to process them into raw material for local and export. Within the premises the majority of materials are: aluminium apertures, which are split up into aluminium and glass, and used electricity cables which are processed into steel, copper, aluminium, rubber and PVC. Other items are refrigeration condensers and evaporators which again are split into aluminium or copper.

No car components are available on site except engine blocks, which are normally aluminium cast. Since there is the minor possibility of some oil containment an interceptor system was installed as covered in the following section.

The only fuel storage is a diesel tank factory certified and includes a 110% bund. The secondary storage facility has a dispenser and is currently in the registration process with REWS. No lubricating oils are available on site as vehicle and any other servicing is outsourced. Any other items on site are all very minimal.

2.2 *Stage 1: Hazardous Substances Identification*

Below is a list of hazardous substances that **at some point may be found** on site together with their respective code:

| | |
|-----------|---|
| 07 06 01* | Aqueous washing liquids and mother liquors |
| 07 06 03* | Organic halogenated solvents, washing liquids and mother liquors |
| 07 06 04* | Other organic solvents, washing liquids and mother liquors |
| 07 06 08* | Other still bottoms and reaction residues |
| 07 06 09* | Halogenated filter cakes and spent absorbents |
| 07 06 10* | Other filter cakes and spent absorbents |
| 07 06 11* | Sludges from on-site effluent treatment containing dangerous substances |
| 08 03 17* | Waste printing toner containing dangerous substances |
| 13 07 01* | Diesel Fuel |

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- 16 02 11* Discarded equipment containing chlorofluorocarbons, HCFC, HFC
- 16 02 13* Discarded Equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12
- 16 02 15* Hazardous components removed from discarded equipment
- 16 03 05* Organic wastes containing dangerous substances (liquid soap, shampoo, creams, soap, powders and toothpaste)
- 16 06 01* Lead Batteries
- 16 06 02* Ni-Cd batteries
- 16 06 03* Mercury-containing batteries
- 20 01 23* Discarded equipment containing chlorofluorocarbons
- 20 01 35* Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35 (other than those mentioned in section 2.2.1 only)

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2.3 Stage 2: Hazardous Substances Relevance

| Hazardous Substance | Waste code | Chemical and Physical Property | Pollution Risk |
|---|------------|---|----------------|
| Aqueous washing liquids and mother liquors | 07 06 01* | These are in semi-solid form, soluble, non toxic, moderate mobility, not persistent | Relevant |
| Organic halogenated solvents, washing liquids and mother liquors | 07 06 03* | These are in semi-solid form, soluble, non toxic, moderate to high mobility, not persistent | Relevant |
| Other organic solvents, washing liquids and mother liquors | 07 06 04* | These are in semi-solid form, soluble, non toxic, moderate mobility, not persistent | Relevant |
| Other still bottoms and reaction residues | 07 06 08* | These are in semi-solid form, non soluble, toxic, moderate mobility and persistent | Relevant |
| Halogenated filter cakes and spent absorbents | 07 06 09* | These are in solid form, non soluble, toxic, low mobility, not persistent | Not Relevant |
| Other filter cakes and spent absorbents | 07 06 10* | These are in solid form, non soluble, toxic, low mobility, not persistent | Not Relevant |
| Sludges from on-site effluent treatment containing dangerous substances | 07 06 11* | These are in semi-solid form, non soluble, toxic, moderate mobility and non persistent | Relevant |
| Waste printing toner containing dangerous substances | 08 03 17* | These are in solid form, non soluble, toxic, low mobility and persistent | Not Relevant |
| Diesel Fuel | 13 07 01* | These are in liquid form, non soluble, toxic, high mobility, not persistent | Not Relevant |
| Discarded equipment containing | 16 02 11* | These are in solid and liquid form, non soluble, toxic, low | Not Relevant |

| | | | |
|--|-----------|---|-----------------|
| chlorofluorocarbons , HCFC, HFC | | mobility and non persistent | |
| Discarded Equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12 | 16 02 13* | These are in solid and liquid form, non soluble, toxic, low mobility and non persistent | Not Relevant |
| Hazardous components removed from discarded equipment | 16 02 15* | These are in solid form, non soluble, toxic, low mobility and non persistent | Not Relevant |
| Organic wastes containing dangerous substances (liquid soap, shampoo, creams, soap, powders and toothpaste) | 16 03 05* | These are in semi-solid form, soluble, non toxic, moderate mobility, not persistent | Relevant |
| Lead Batteries | 16 06 01* | These are in solid and liquid form, non soluble, toxic, moderate mobility, not persistent | Relevant |
| Ni-Cd batteries | 16 06 02* | These are in solid form, non soluble, highly toxic, no mobility, not persistent | Relevant |
| Mercury-containing batteries | 16 06 03* | These are in solid form, non soluble, highly toxic, no mobility, not persistent | Relevant |
| Discarded equipment containing chlorofluorocarbons | 20 01 23* | These are in solid and liquid form, non soluble, toxic, low mobility and non persistent | Not Relevant |
| Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35 (other than those mentioned in section 2.2.1 only) | 20 01 35* | These are in solid form, non soluble, toxic, low mobility and non persistent | Not Relevant |

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2.4 Stage 3: Hazardous Substances Quantities And Containment Method

| Hazardous Substance | Quantity Found on Site | Storage Method |
|---|------------------------|---|
| Aqueous washing liquids and mother liquors | <5T | These are stored in sealed plastic containers and processed in an impervious cesspit. Sealing integrity is very good. |
| Organic halogenated solvents, washing liquids and mother liquors | <5T | These are stored in sealed plastic containers and processed in an impervious cesspit. Sealing integrity is very good. |
| Other organic solvents, washing liquids and mother liquors | <5T | These are stored in sealed plastic containers and processed in an impervious cesspit. Sealing integrity is very good. |
| Other still bottoms and reaction residues | None found on Site | If available, these are stored in impervious metal drums. Sealing integrity is very good. |
| Sludge from on-site effluent treatment containing dangerous substances | None found on Site | If available, these are stored in impervious metal drums. Sealing integrity is very good. |
| Organic wastes containing dangerous substances (liquid soap, shampoo, creams, soap, powders and toothpaste) | <1T | These are stored in sealed plastic containers and processed in an impervious cesspit. Sealing integrity is very good. |
| Lead Batteries | <300T | These are in a semi dry state and do not pose and ground water or soil contamination risk, since they are contained in plastic impervious containers. Sealing integrity is very good. |
| Ni-Cd batteries | <10T | These are in a dry state and do not pose and ground water or soil contamination risk, since they are contained in plastic impervious containers. Sealing integrity is very good. |
| Mercury-containing batteries | None found on Site | If available, these are stored in impervious plastic containers. Sealing integrity is very good. |

2.5 Stage 4: Scrappage Procedures

All aluminium is shredded and segregated using an eddy current process resulting in a low carbon footprint.

Electrical cables are also segregated using an eddy current process resulting in a lower carbon footprint.

Tyre and documentation shredding are another operation that is being used within the premises. However, all the separated material is exported.

Another new process is the management and treatment of WEEE's.

3.0 Site Ground Water Protection Measures

The floor of the sites are covered with a layer of concrete and this protects against ground water contamination. However, to totally eliminate water table contamination, the site is equipped with a series of floor drains and interconnected pipework which are all directed to Class I interceptors which include polyethylene hydrocarbon decanter-separators and comply with *EN 858-1* and *EN 858-2* standards.

All interceptors compartments are easily accessed for inspections and maintenance and the waste water treatment takes place in two phases:

- Settling of sludge and sand in the decanter sand trap compartment
- Separation of oil and hydrocarbons through the coalescing effect

Through the oil separators, no oil will be transferred to the main cesspit but it will be contained within the oil separators, which will be retrieved by an authorized waste carrier when required.

The discharge of these oil interceptors is directed towards cesspits with physical dimensions that conform to Schedule 1 Activity 43 of *Legal Notice 106 of 2007*, hence avoiding any possible penetration to the groundwater water table.

Water collected is used for cleaning purposes only. Relevant reservoirs have been re-tested and positive results tests were obtained.

The existing registered borehole is not being used anymore and it has been sealed and covered appropriately.

4.0 Site Equipment



Diesel fuel tanks which are factory certified and include a 110% bund for protection in the case of a spill are present within the premises. The secondary storage facility DOES NOT have a dispenser and is registered with REWS No lubricating oils are available on site.

5.0 Conclusion

The above report is based on a number of visits and several discussions with owners. Past operations have also been discussed and highlighted if there was the possibility of any ground water contamination. From the above sections we can conclude that this environmental risk assessment report used to identify the activities involving the use

and production or release of relevant hazardous substances in order to prevent and tackle potential soil and ground water contamination, was found to be none at all, hence a baseline report is not required.

We trust the above is in line with your requirements, and should you require any further clarifications, please do not hesitate to contact us.

Regards



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Appendix VII

Certificate of incorporation or registration

COMPANIES ACT, 1995

CERTIFICATE OF COMPLIANCE WITH THE COMPANIES ACT, 1995

Metalco Limited

Name of Commercial Partnership

49, Scrap Lane, Valletta Road, Luqa, Malta

Registered Office

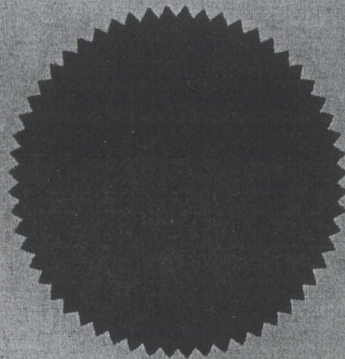
C 9037

Registration No.

This is to certify that the above-mentioned
Commercial Partnership which was registered under
the Commercial Partnerships Ordinance on the

23 September, 1987

has complied with the provisions of the Companies Act, 1995
in terms of Section 428 of the Act and shall henceforth be
regulated by the said Act.



O. Grech
O. GRECH

Registrar

31st **December,** **97**
Dated this day of 19.....

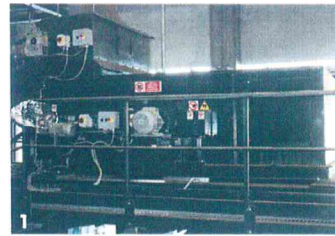
Appendix VIII

Dust filter technical specifications

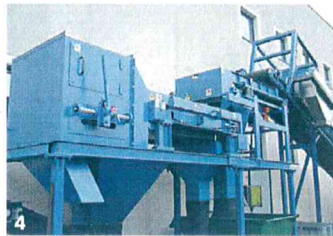
SEPARATORE

PER METALLI E LEGHE DA MATERIALI INERTI

- 1) Separatore ECS, cuffie e deflettore di scarico.
- 2) Separatore ECS, cuffie e deflettore di scarico e canale vibrante.
- 3) Separatore ECS, cuffie e deflettore di scarico, canale vibrante e separatore magnetico a nastro.
- 4) Separatore ECS, cuffie e deflettore di scarico, canale vibrante e tamburo magnetico.



- 1) ECS separator with discharging chutes and adjustable flap.
- 2) ECS separator with discharging chutes, adjustable flap and vibrofeeder.
- 3) ECS separator with discharging chutes, adjustable flap, vibrofeeder and overband.
- 4) ECS separator with discharging chutes, adjustable flap, vibrofeeder and magnetic drum.



EDDY CURRENTS SEPARATOR

FOR METALS AND ALLOYS FROM INERT MATERIALS

CISQ/IMQ/CSQ 9190.GAUS - UNI EN ISO 9001:2008
GAUSS MAGNETI SRL - Via S. Scaroni, 27 - 25131 FORNACI - BRESCIA - ITALY
 Cnp. Soc. € 400.000,00 l.v. - P.I. e C.F. IT 03535610178 - REA: BS 414240 - R.I. BS 03535610178
 E-mail: info@gaussmagneti.it - www.gaussmagneti.it
DIVISIONE SEPARAZIONE: Tel. 030 2680841 / 030 3582801 - Fax 030 3580517
DIVISIONE SOLLEVAMENTO: Tel. 030 3580375 / 030 3580696 - Fax 030 3580846

SEPARATORE EDDY CURRENTS SEPARATOR

PER METALLI E LEGHE DA MATERIALI INERTI - FOR METALS AND ALLOYS FROM INERT MATERIALS

Il separatore ad induzione ECS è in grado di separare i metalli non ferrosi, quali Al - Mg - Cu - Ag - Zn - Sn - Pb da materiali inerti non elettricamente conduttori, quali vetro - legno - plastica - gomma - carta - sabbia ecc.

Principio di funzionamento

Il separatore ECS è basato sul principio delle correnti indotte (correnti di Foucault): generalmente, nel metallo da separare, da un forte campo magnetico rotante. La separazione del metallo dall'inerte avviene per repulsione del metallo: il nastro porta i materiali sopra il rotore magnetico interno, i metalli non ferrosi vengono lanciati in avanti mentre l'inerte cade liberamente.

Applicazioni

Il separatore ECS è normalmente impiegato ove sia richiesta la separazione di metalli non ferrosi da materiali inerti. I tipi d'impianti nei quali è maggiormente rilevante l'impiego del separatore ECS sono i seguenti:

- Impianti di trattamento rifiuti, frazione secca, multimateriale o CDR;
- Impianti di riciclaggio imballaggi in alluminio;
- Impianti di riciclaggio vetro cavo e piano;
- Impianti di riciclaggio PVC - PE - PET;
- Impianti di riciclaggio legno;
- Impianti di macinazione di profiliti in alluminio e/o auto (prolier e fluff) ed elettrodomestici RAEE;
- Impianti di finitura fusioni in alluminio, bronzo, ottone, rame;
- Impianti di fonderia metalli non ferrosi;
- Impianti di trattamento di residui da combustione, ceneri da inceneritori.

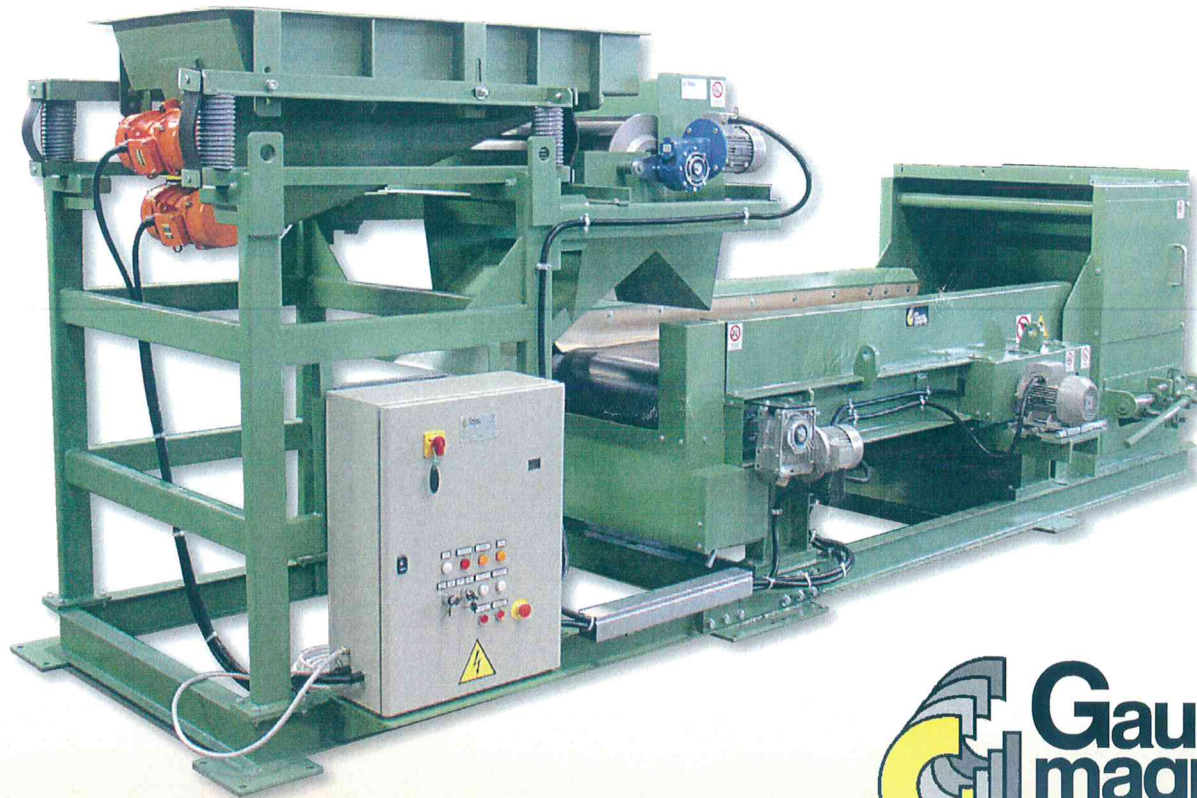
Scelta della macchina

Per ciascuna delle applicazioni sopra citate esistono criteri di scelta delle varie grandezze di macchine standard, basati soprattutto su portata, pezzatura e rendimento minimo richiesto. Dalla grandezza minima ECS 500 alla grandezza massima ECS 2500, si possono trattare volumi da 3 a 250 m³/h, pezzature da 3 a 400 mm, con rendimenti sempre comunque vicini al limite della separazione.

Per poter effettuare una scelta accurata della macchina ECS esistono dei questionari che Vi invitiamo a richiederci. Le informazioni in essi contenute ci permetteranno di proporre una macchina ECS nella costruzione e nella grandezza adeguate agli scopi prefissi.

Varie tipologie costruttive dei separatori ECS sono evidenziate qui di fianco.

In ogni caso la società Gauss Magneti S.r.l. è disponibile a ricevere ed a testare campionature di materiali per verificare con gli utilizzatori le effettive capacità del sistema ECS.



The eddy currents separator ECS can separate the non-ferrous metals, like Al - Mg - Cu - Ag - Zn - Sn - Pb - from the inert materials that are not electrically conductors, like glass - wood - plastic - rubber - paper - sand etc.

Principle of Operation

The separator ECS is based on the principle of the eddy currents (Foucault's Currents), generated on the metal to separate by a high rotating magnetic field. The separation of the metal from the inert is made by repulsion: the belt carries the materials on the internal magnetic rotor, the non-ferrous metals are thrown forward while the inert falls down freely.

Applications

The separator ECS is normally used where the separation of the non-ferrous metals from the inert materials is requested. The types of the plants in which the use of the ECS separators more important are the following:

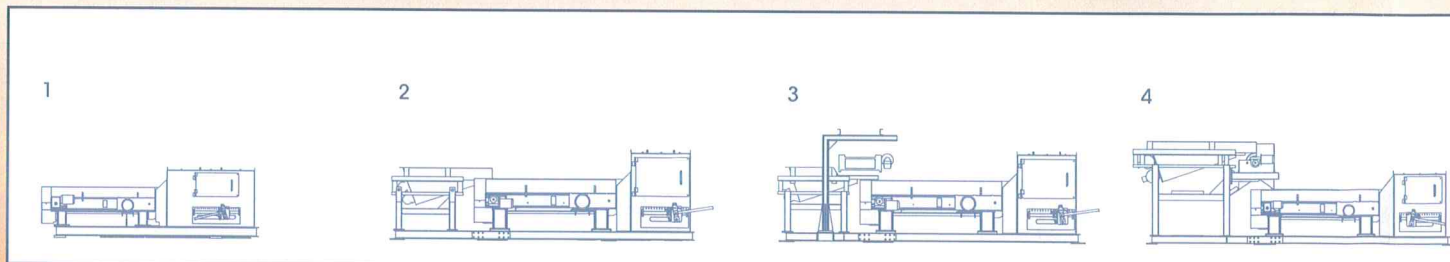
- Plants of waste treatment, dry fraction, multi-material or RDF;
- Recycling plants of Aluminium packages;
- Recycling plants of the empty and plane glass;
- Recycling plants of PVC - PE - PET;
- Recycling plants of wood;
- Plants of grinding of the Aluminium shapes and/or cars (prolier and car fluff) and household appliances WEEE;
- Plants of finishing of smelting in Aluminium, bronze, brass, copper;
- Plants of foundry of non-ferrous metals;
- Treatment plants of the residual combustion products, ashes from incinerators.

Choice of the machine

For each above mentioned application, there are different choice principles for the various dimensions of the standard machines, principally based on the flowrate, sizes and minimum required performance. From the little size ECS 500 to the big size ECS 2500, we can treat volumes from 3 to 250 m³/h, sizes from 3 to 400 mm, with performances that are, in any case, always next to the physical limit of the separation.

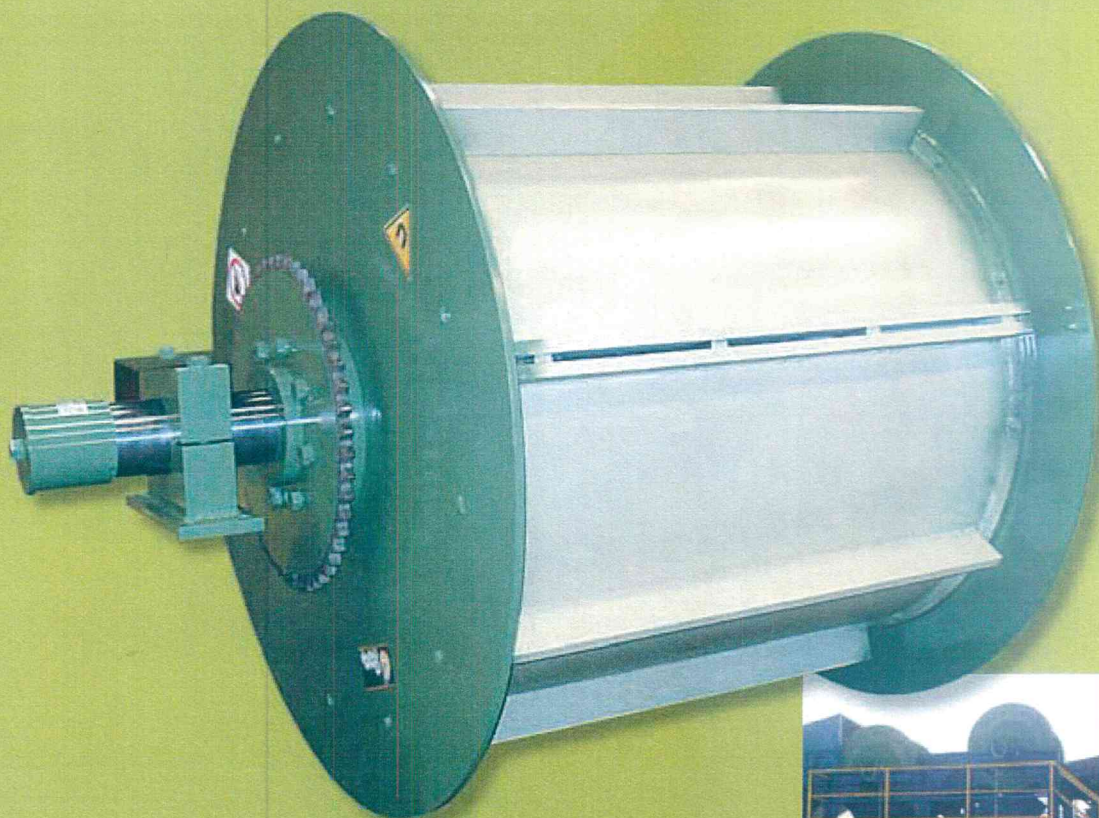
To be able to do a careful choice of the ECS machines, we have some questionnaires and we invite you to require them. The information, that they include, will permit to us to propose a ECS machine in the construction and in the size right for the pre-established purposes. Different constructive types of the separators ECS are here evidenced. Gauss Magneti S.r.l. is available to receive and to test some materials samples to verify, together with the users, the real capacities of the ECS system.

- 1) Separatore ECS, cuffie e deflettore di scarico.
- 2) Separatore ECS, cuffie e deflettore di scarico e canale vibrante.
- 3) Separatore ECS, cuffie e deflettore di scarico, canale vibrante e separatore magnetico a nastro.
- 4) Separatore ECS, cuffie e deflettore di scarico, canale vibrante e tamburo magnetico.



- 1) ECS separator with discharging chutes and adjustable flap.
- 2) ECS separator with discharging chutes, adjustable flap and vibrofeeder.
- 3) ECS separator with discharging chutes, adjustable flap, vibrofeeder and overband.
- 4) ECS separator with discharging chutes, adjustable flap, vibrofeeder and magnetic drum.

pullegge magnetiche
magnetic pulleys



tamburi magnetici
magnetic drums



**Gauss
magneti** SRL

MAGNETIC EQUIPMENTS FOR HANDLING
AND SEPARATION TECHNOLOGY



tamburi magnetici • magnetic drums

Indicati per la separazione continua e automatica di materiale ferroso di piccole, medie e grosse dimensioni, vengono installati sullo scarico dei convogliatori, siano essi costituiti da nastri, scivoli o canali vibranti.

I tamburi magnetici hanno il campo magnetico sviluppato su 180°, captano le parti ferromagnetiche presenti nel materiale di processo trattenendole e devianandone la direzione rispetto a quella del materiale di processo.

Nell'impiego dei tamburi magnetici ha grande importanza la distribuzione del materiale che dev'essere costante ed omogenea.

I tamburi magnetici sono costituiti da:

- il nucleo **magnetico**, grazie alla possibilità di regolazione viene fissato in una determinata posizione in modo da captare il materiale ferromagnetico presente nel materiale di processo.
Il campo magnetico può essere elettrico o a magneti permanenti, in Ferrite, in Neodimio o, in casi particolari ad esempio alte o basse temperature di funzionamento con magneti in leghe speciali.
- l'involucro rotante, è costruito in materiale amagnetico. Questo ruota attorno al nucleo magnetico grazie alle flange laterali e evacua il materiale ferromagnetico attirato oltre il campo magnetico.

Il tamburo può captare pezzi ferrosi di peso considerevole e di grossa pezzatura, ma costituisce anche il separatore ideale per materiali di piccole dimensioni.

In funzione del materiale ferromagnetico da estrarre da quello di processo, si possono adottare due configurazioni magnetiche differenti, una con polarità longitudinali (O) o una a polarità radiali (V). Queste possono essere costruite con magneti a campo permanente (ferrite, Neodimio) aventi un'intensità costante, o con avvolgimenti elettrici (alluminio, rame) in modo da poter variare l'intensità magnetica per ottenere differenti gradi di separazione del materiale di processo.

L'utilizzo del tamburo magnetico a polarità longitudinali permette una separazione magnetica grazie anche alla barilatura del materiale sull'involucro rotante. La barilatura consiste nell'azione di rotolamento del materiale su se stesso grazie alla geometria del campo magnetico.

I campi di applicazione sono molteplici: impianti di trattamento riciclaggio metalli, WEEE, trattamento e valorizzazione rifiuti, scorie, minerali; legno, vetro, sabbia e inerti, ecc.

Ogni caso da Voi sottoposto per l'impiego dei ns tamburi magnetici verrà sempre vagliato dal ns ufficio tecnico, che provvederà a proporre la soluzione più corretta al vs problema.

TAMBURI MAGNETICI PERMANENTI

La struttura si compone essenzialmente di un albero che funge da elemento portante, dalle espansioni polari, dagli elementi magnetici permanenti e dall'involucro esterno ruotante, in acciaio amagnetico, con listelli trasportatori ed i supporti a morsa per bloccare in posizione la struttura magnetica interna e regolarne l'orientamento per ottimizzare la separazione magnetica.

Manutenzione minima, può lavorare in qualsiasi ambiente, basso consumo energetico, garanzia di magnetizzazione 20 anni.

Nei tamburi a magneti permanenti TM, il campo induttore (magnetizzante) è generato da magneti in Ferrite o in Neodimio (terre rare).

L'impiego di questi magneti permanenti dipende dal tipo e dalle dimensioni del materiale nonché dalle condizioni di utilizzo.

La manutenzione è estremamente ridotta e semplice.

I Tamburi magnetici sono prodotti ecologici e riciclabili.

La gamma dei tamburi magnetici permanenti prodotti è molto ampia: diametri da 200÷1500mm e tavole 200÷3000mm

TAMBURI ELETTROMAGNETICI

La struttura si compone essenzialmente di un albero che funge da elemento portante, dalle bobine elettromagnetiche (magnetizzanti) e dall'involucro esterno rotante, in acciaio amagnetico, con listelli trasportatori ed i supporti a morsa per trattenere in posizione la struttura magnetica interna e regolarne l'orientamento per ottimizzare la separazione magnetica.

Nei tamburi a elettromagnetici TE/TEE, il campo induttore (magnetizzante) è generato da bobine di conduttore (alluminio, rame) avvolte intorno ad un nucleo alta in acciaio a basso tenore di carbonio ed alta permeabilità magnetica. L'impiego di questi elettromagneti dipende dal tipo e dalle dimensioni del materiale nonché dalle condizioni di utilizzo.

La gamma dei tamburi elettromagnetici prodotti è molto ampia: diametri da 500÷1800mm e tavole 500÷3000mm

Suitable for automatic and continuous separation of ferrous material in small, medium and large sizes, they are installed on the conveyor discharge, whether they consist of bands, slides or vibrating channels.

The magnetic drums, with magnetic field spread on 180°, catch the ferromagnetic parts in the material by deviating their direction from that of the processed material.

The constant and homogeneous material distribution is very important in the use of magnetic drums.

The magnetic drums are made by:

- The magnetic core, thanks to the adjustment possibility, is fixed at a certain position in order to capture the ferromagnetic material present in the processed material. The magnetic field can be created by electric or permanent magnets, Ferrite, Neodymium, or, in special cases, such as high or low temperature operations, with magnets made of special alloys.
- The rotating drum shell is made of non-magnetic material; it rotates around the magnetic core, supported by lateral flanges, by evacuating the ferromagnetic material attracted over the magnetic field.

Magnetic drums can pick up considerably heavy and quite large ferrous pieces, but it is also ideal to separate materials of small dimensions.

As for the extraction of the ferromagnetic material from the process, our magnetic drum can have two different magnetic configurations, with a longitudinal polarity (O) or a radial polarity (V). These can then be constructed with permanent magnets (Ferrite, Neodymium) having a constant intensity, or with electric windings (aluminum, copper) so as to be able to vary the magnetic intensity to obtain different degrees of separation of the processed material.

The use of the drum magnetic polarity allows a longitudinal magnetic separation thanks also to the tumbling of the material during the shell rotation. The tumbling consists in the rolling of the material thanks to the geometry of the magnetic field.

Fields of application are numerous: metal processing recycling plants, WEEE, waste processing and recycling, minerals, wood, glass, sand and aggregates, etc...

Every single case submitted to us will always be examined by our technical department, who will propose the correct solution to your problem.

PERMANENT DRUMS

The structure essentially consists of a shaft which acts as supporting element, the permanent outer rotating shell is made of nonmagnetic steel. The drum also consists of conveyor slats and clamp supports to lock in the right position the magnetic structure in order to optimize the magnetic separation.

In the drums the (magnetizing) inductor field is generated by Ferrite or Neodymium magnets (rare earth).

The choice of these permanent magnets depends on the type and size of the material and on the operating conditions.

The maintenance is extremely little and very easy.

Our permanent magnetic drums can work in any environment, with very low energy consumption and they have a 20 year magnetization warranty.

The magnetic drums are environmentally friendly and manufactured from recyclable products.

The range of our permanent magnetic drums is very large - diameters from 200 to 1500 mm and working widths from 200 to 3000 mm

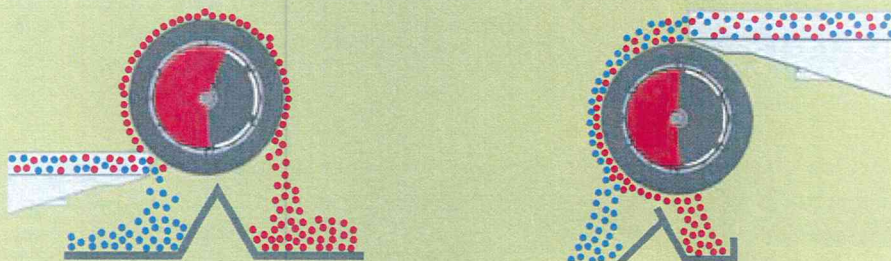
ELECTROMAGNETIC DRUMS

The structure essentially consists of a shaft which acts as the supporting element the electromagnetic coils and outer rotating shell made of nonmagnetic steel. The drum also consists of conveyor slats and clamp supports to lock in the right position the magnetic structure in order to optimize the magnetic separation.

In the electromagnetic TE / TEE drums, the (magnetizing) inductor field is generated by coils of conductor (aluminum, copper) wound around a core in steel with low carbon content and high magnetic permeability.

The choice of these electromagnets depends on the type and size of the material and on the operating conditions.

The range of electromagnetic drums is very large: diameters from 500 to 1800 mm and working widths from 500 to 3000 mm



pulegge magnetiche • magnetic pulleys

La puleggia magnetica viene impiegata per separare automaticamente pezzi ferrosi di medie e piccole dimensioni (mentre per particelle molto fini si ricorre preferibilmente al tamburo magnetico).

Il campo magnetico della puleggia è sviluppato su tutta la circonferenza, a differenza del tamburo che normalmente è solo 180°.

La puleggia è una soluzione conveniente per il costo relativamente ridotto e per l'installazione, in quanto viene applicata anche su impianti già esistenti in luogo del rullo di testa del nastro trasportatore.

A differenza del separatore a nastro, la puleggia capta di preferenza i pezzi ferrosi negli strati inferiori più prossimi al nastro. Perciò, quando lo spessore del materiale è particolarmente elevato ed è richiesto un grado di separazione molto performante, si possono impiegare simultaneamente un separatore a nastro montato perpendicolarmente al nastro trasportatore ed una puleggia magnetica.

La leggera bombatura della superficie assicura inoltre un'ottima tenuta del nastro. La puleggia viene fornita completa di albero con all'estremità uno spacco di chiave per il calettamento del motoriduttore o di una puleggia a gole trapezoidali etc. secondo le esigenze del costruttore del nastro. L'esecuzione è idonea per un servizio continuo. La puleggia magnetica è riciclabile ed ecologica.

I campi di applicazione sono molteplici: impianti di trattamento riciclaggio metalli, WEEE, trattamento e valorizzazione rifiuti, scorie, minerali; legno cippato, vetro, sabbia e inerti, ecc.

PULEGGIA ELETTROMAGNETICA

Le pulegge elettromagnetiche si compongono di un albero che funge da nucleo magnetico, dai poli magnetici costituiti da dischi di acciaio a basso tenore carbonio ed alta permeabilità magnetica e dalle bobine di conduttore (alluminio, rame).

La gamma delle pulegge elettromagnetiche è molto ampia: diametri da 300÷800mm e tavole 500÷2000mm

PULEGGIA MAGNETICA PERMANENTE

Le pulegge magnetiche permanenti si compongono di un albero che normalmente è in acciaio inox AISI 304, dai poli costituiti da acciaio a basso tenore carbonio ed alta permeabilità magnetica e da magneti permanenti che possono essere in ferrite o in neodimio.

I vantaggi dell'impiego della puleggia permanente rispetto a quella elettromagnetica sono evidenti per il solo fatto che mancano il quadro elettrico, raddrizzatore, il collettore e le relative connessioni, soggetti, come gli avvolgimenti stessi, a cortocircuiti ed altre avarie.

La manutenzione della puleggia permanente è assolutamente nulla e la forza di attrazione è praticamente illimitata nel tempo. Garanzia di magnetizzazione 20 anni. Il limite alla loro applicazione, è la profondità del campo magnetico che è normalmente di circa 100mm per cui lo strato di materiale sul nastro non dovrebbe avere uno spessore superiore a 80mm circa.

La puleggia magnetica permanente non richiede manutenzione propria. La gamma delle pulegge magnetiche permanenti è molto ampia: diametri da 100÷800mm e tavole 200÷2000mm

Our magnetic pulleys are used to automatically separate small and medium pieces of iron (while magnetic drums are used preferably for very fine particles) The magnetic field of a pulley magnet is developed on all of its circumference surface, while the magnetic field of a drum is on 180°.

The pulley is more convenient thanks to its lower price and also for its easy installation as it can be easily installed in existing units by exchanging them with the terminal head of the conveyor.

Unlike the over band separator the pulley captures iron pieces in the lower layers of the material over the belt. Therefore, when there is a larger sized material layer and a high grade separation is required, a combination of an over band separator with the pulley is recommended to achieve the best results.

The slight crowning of the pulley's surface allows an excellent belt adherence.

The pulley is supplied complete with a shaft having one end a cleft key for the coupling of a trapezoidal pulley according to the conveyor belt manufacturer. Our pulleys have heavy duty execution to guarantee continuous operational use. Our pulley is ecologically friendly and completely recyclable.

Some application fields are: metals recycling plants, WEEE, wastes processing plants, slags, minerals; wood chips, glass, sands and inert materials, etc.

ELECTROMAGNETIC PULLEY

Our electromagnetic pulleys consist of a shaft which acts as a supporting element for: Magnetic poles made of low carbon steel and high magnetic permeability and coils of conductor (aluminum, copper).

The range of our electromagnetic pulleys is very large - diameters from 300 - 800mm and working widths from 500 - 2000mm

PERMANENT MAGNETIC PULLEY

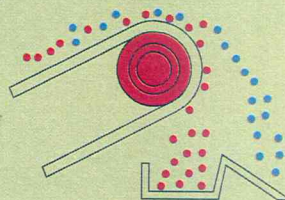
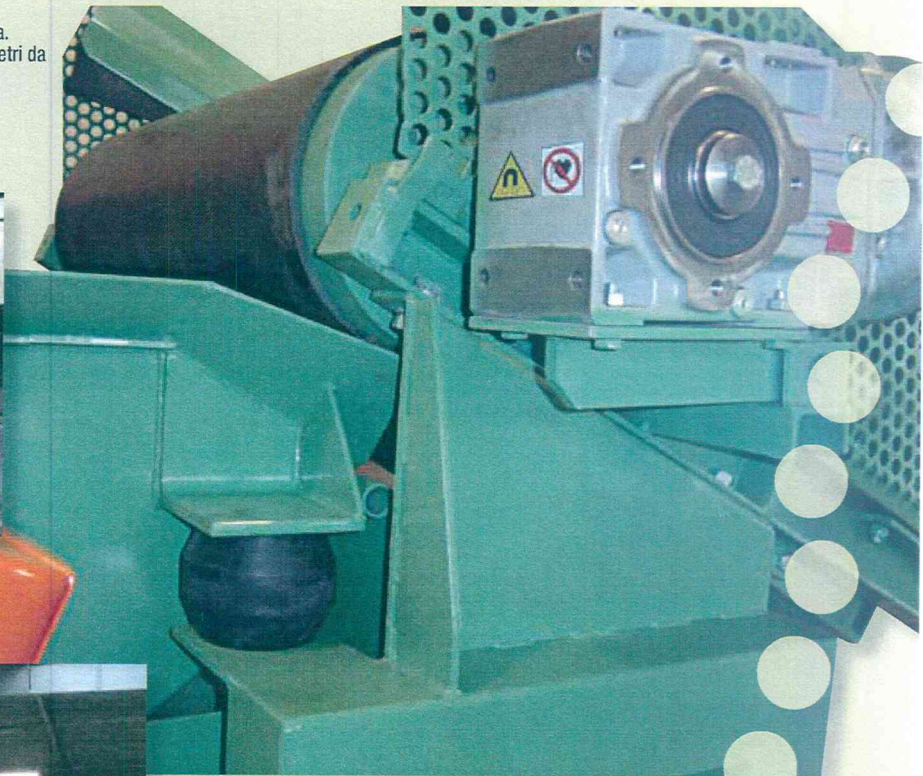
Our permanent magnetic pulleys are normally made of a shaft in stainless steel AISI 304, magnetic poles of low carbon steel and high magnetic permeability and of permanent magnets in Ferrite or Neodymium.

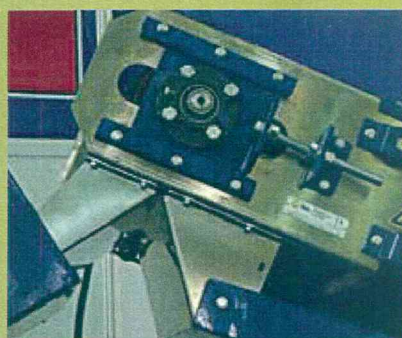
Permanent magnetic pulleys have the advantage that there is no need for either a rectifier nor for collectors with all their electrical connections. These are just as coil windings the source for possible short circuits and other damages.

Permanent magnetic pulleys require no maintenance and the attraction force is practically never ending. A 20 Years Magnetization Warranty is granted.

The only limitation in their application possibility is related to the depth of the magnetic field which is normally about 100 mm; therefore the material layer on the conveyor belt should not exceed approx. 80 mm. The permanent magnetic pulley doesn't need any maintenance.

The range of our permanent magnetic pulleys is very large - diameters from 100÷800mm and working widths from 200÷2000mm





MAGNETIC EQUIPMENTS FOR HANDLING
AND SEPARATION TECHNOLOGY



CISQ/IMQ/CSQ 9190.GAUS - UNI EN ISO 9001:2008
GAUSS MAGNETI SRL - Via S. Scaroni, 27 - 25131 FORNACI - BRESCIA - ITALY
Cap. Soc. € 400.000,00 i.v. - P.I. e C.F. IT 03535610178 - REA: BS 414240 - R.I. BS 03535610178
E-mail: info@gaussmagneti.it - www.gaussmagneti.it
DIVISIONE SEPARAZIONE: Tel. 030 2680641 / 030 3582801 - Fax 030 3580517
DIVISIONE SOLLEVAMENTO: Tel. 030 3580375 / 030 3580696 - Fax 030 3580846

Appendix IX

Correspondence with REWS

Yasmin Schembri

From: Mario Cremona <mario@metalcoltd.com>
Sent: 30 April 2020 12:26
To: Yasmin Schembri
Subject: Fwd: [FWD: RE: [FWD: Metalco fuel tank]]

Sent from my iPhone

Begin forwarded message:

From: info@metalcoltd.com
Date: 30 April 2020 at 12:22:36 GMT+2
To: "mario@metalcoltd.com" <mario@metalcoltd.com>
Subject: [FWD: RE: [FWD: Metalco fuel tank]]

----- Original Message -----

Subject: RE: [FWD: Metalco fuel tank]
From: Andre Zammit <andre.zammit@rews.org.mt>
Date: Wed, February 12, 2020 8:46 am
To: "info@metalcoltd.com" <info@metalcoltd.com>

Dear Matthew,

As explained last week, the IPPC Permit IP 002/13/A is still valid. Therefore, the remaining pending document is the PA Compliance certificate.

Do you have a PA Compliance Certificate for application PA/02823/15?

As soon as we have this information we may proceed with your application.

Thanks.

Regards,

André Zammit
Officer
Competence, Licensing and Enforcement



Zentrum Business Centre, Level 1
Mdina Road,
Hal Qormi QRM 9010
Malta
Tel: +356 22955169



Our offices will reopen on 27th January at the new premises.

For further details visit:
www.rews.org.mt

We have moved to:

ZENTRUM BUSINESS CENTRE,
LEVEL 1,
MDINA ROAD, QORMI



Get here by bus: 61, 62, 209



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From: info@metalcoltd.com <info@metalcoltd.com>
Sent: 30 January 2020 07:40
To: Andre Zammit <andre.zammit@rews.org.mt>
Subject: [FWD: Metalco fuel tank]

Dear Andre, good morning.

How can we proceed re the below issue as ERA are requesting this permit as part of our IPPc variation and renewal and we do not wish to operate without a valid ERA permit.

Thanks in advance

Matthew

----- Original Message -----

Subject: Metalco fuel tank
From: <info@metalcoltd.com>
Date: Wed, January 08, 2020 8:23 am
To: andre.zammit@rews.com.mt

Dear Andre, good morning,

in December I spoke to Stephen re the final permit of the fuel tank at our yard in Luqa. As discussed with Stephen we

removed the dispenser the tank came with and replaced it with a simple valve. With Stephen we also discussed the possibility of signing a declaration together with our engineer that no commercial vehicles can access the room the tank is stored in. Can we proceed with this and also is there any other pending issues?

Thanks very much for your help.

Matthew

Appendix X

Sewer discharge permit application



Qormi road, Luqa LQA 9043

Freephone: (+356) 8007 6400 | E-mail: customercare@wsc.com.mt | Website: www.wsc.com.mt

Application for a Public Sewer Discharge Permit (based on S.L. 545.08 - Schedule D)

SECTION A

I MATTHEW FEJECI MAGRIN (Full Name), I.D. Card number 34485(m)
 residing at TWILIGHT CRT, FLT3, TRIQ SALVATORE CACHIA ZAMMIT,
BIRZEBBUGA
 telephone 21667855 fax _____ mobile 79053463
 e-mail info@metallo.com VAT number MT 1003-6531
 as representative of METALCO LTD.

am applying for a permit to discharge effluent into the public sewer, during the one year period

from

| | | |
|----|----|------|
| DD | MM | YY |
| 01 | 05 | 2020 |

 to

| | | |
|----|----|------|
| DD | MM | YY |
| 01 | 05 | 2021 |

Address of premises from which effluent will be discharged:

48, SCRAP LANE, VALLETTA ROAD, LUQA

The following is a brief outline of activities/processes envisaged to be carried out at the above premises during the above mentioned period:

• Purchasing and processing of scrap metal

The substances that will be used at the above premises (not necessarily discharged in the effluent) during the said period are:

| Substances | Kg |
|--------------------------------|-------|
| <u>As per attached reports</u> | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

The proposed point of discharge is indicated in the attached site plan, scale 1:2500, which is signed by Architect and Civil Engineer

MARK ABELA

name in BLOCK LETTERS

Declaration by Applicant (tick appropriate box)

I declare that the effluent to be discharged from the above mentioned premises is exclusively domestic sewage i.e. effluent resulting exclusively from activities related to the habitation of humans, such as the use of toilets, wash hand basins, showers and kitchen facilities.

I declare that the effluent to be discharged from the above mentioned premises is trade effluent having the same characteristics as approved in Public Sewer Discharge Permit No _____ covering the period from

| | | |
|----|----|----|
| DD | MM | YY |
|----|----|----|

 to

| | | |
|----|----|----|
| DD | MM | YY |
|----|----|----|

(If one of the above options are chosen, you may proceed to SECTION E)

I declare that the effluent to be discharged from the above mentioned premises is, at least partly, trade effluent, as defined in the Environment Protection (Sewer Discharge Control) Regulations, 2002. For this reason, I am supplying the following information which, I understand, shall be treated as strictly confidential:

SECTION B to be filled in for the discharge of trade effluent, please tick appropriate box/boxes

Type of industrial activity/process envisaged to take place in above premises during the year

Activity I - Manufacturing and Processing

- | | | |
|---|--|---|
| <input type="checkbox"/> Textiles & clothes | <input type="checkbox"/> Soap & detergent | <input type="checkbox"/> chemical(s) <i>specify which</i> |
| <input type="checkbox"/> Shoes | <input type="checkbox"/> Carpentry | _____ |
| <input type="checkbox"/> Food | <input type="checkbox"/> Glass & porcelain | _____ |
| <input type="checkbox"/> Beer | <input type="checkbox"/> Electronic components | _____ |
| <input type="checkbox"/> Wines & spirits | <input type="checkbox"/> Metal goods | _____ |
| <input type="checkbox"/> Soft drinks | <input type="checkbox"/> Batteries | _____ |
| <input type="checkbox"/> Mineral water | <input type="checkbox"/> Leather | |
| <input type="checkbox"/> Paint & pigments | <input type="checkbox"/> Tiles | <input type="checkbox"/> Other <i>specify which</i> |
| <input type="checkbox"/> Paper & cardboard | <input type="checkbox"/> Glue | _____ |
| <input type="checkbox"/> Plastic & resin | <input type="checkbox"/> Explosives | _____ |
| <input type="checkbox"/> Tobacco | <input type="checkbox"/> Rubber | _____ |
| <input type="checkbox"/> Stone & marble | <input type="checkbox"/> Lime | _____ |
| <input type="checkbox"/> Carpentry | <input type="checkbox"/> Candles | _____ |

NAME OF SUBSTANCE

(a) *

(b) **

| NAME OF SUBSTANCE | (a) * | (b) ** |
|-------------------|-------|--------|
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

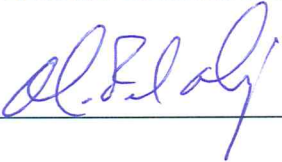
* (a) Maximum concentration in effluent, expressed in mg/L

** (b) Total amount of material to be discharged in sewerage system during year, expressed in Kg

SECTION E

I declare that the information contained above is true.

Signed



Date

27/04/2020

Name in Full

MATTHEW FENECH NABRIN

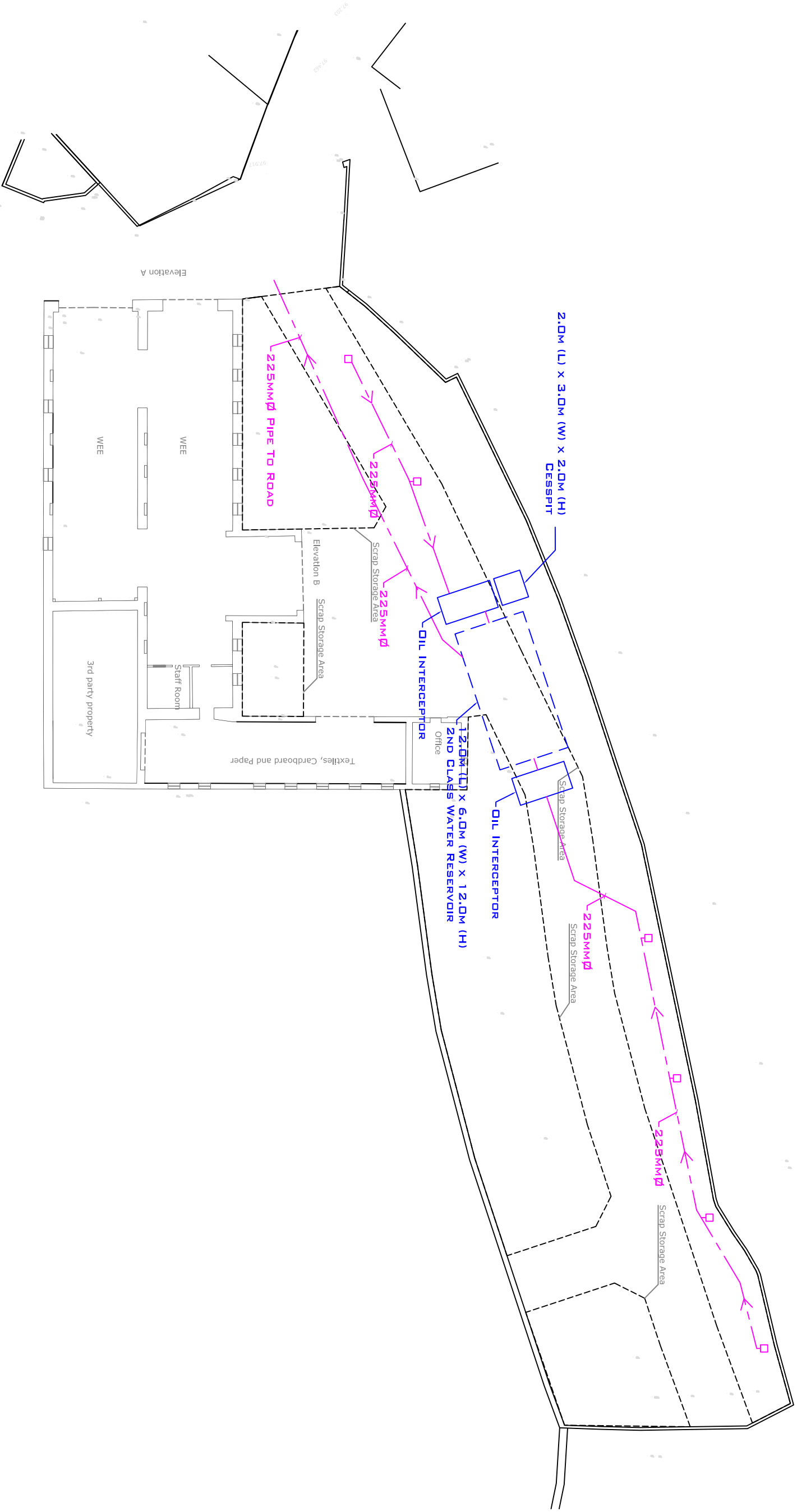


Official company/personal
stamp of industrial concern

€11.65 fee for the first application
or any subsequent application not being a renewal

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LEGEND:

□ 600MM X 600MM FLOOR GRILLES

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2. Do not scale this drawing as a basis of measurement and the contractor is to check dimensions before construction. ECL consulting engineers must be informed about any contradiction or discrepancy before work is started. Any discrepancies arising from failure of doing so will be deemed to be the responsibility of contractor, and any claims for variation will be rejected.
3. These drawings are conceptual to assist the tenderer to formulate a proposal for works. The successful tenderer is to provide his own construction drawings, to co-ordinate the installation with the building structure, finishes and all other MAE services.

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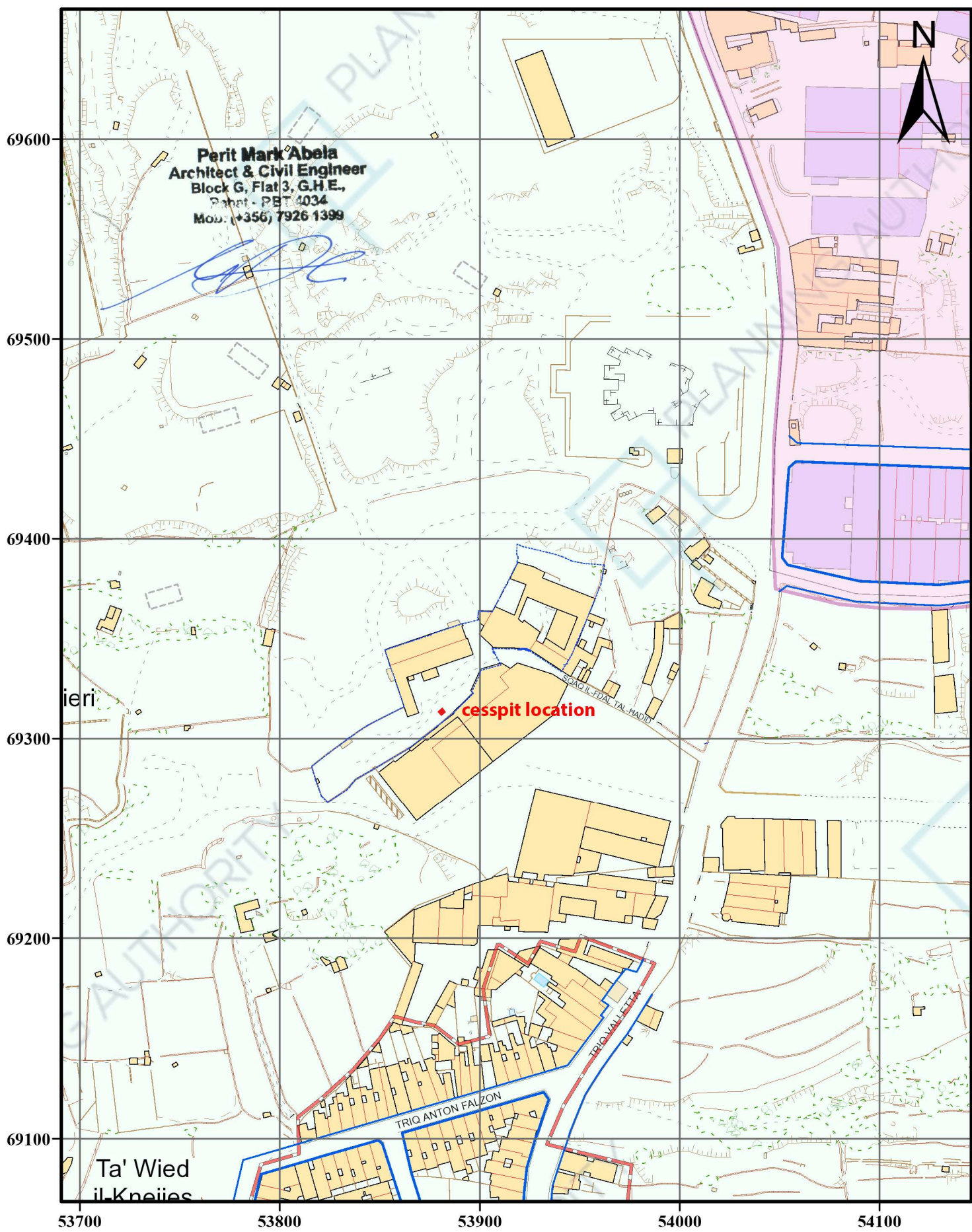
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 T/F: +356 2733 4472 C: +356 9986 8828
 W: WWW.ECLUCE.COM E: INFO@ECLUCE.COM

PROJECT:
 METALCO LTD

DRAWING TITLE:
 CESSPIT & INTERCEPTOR LAYOUT

| | | | |
|---------------|---------------|------------|--------------|
| REVISION NO.: | LAST UPDATED: | SCALE: | DRAWING NO.: |
| 03 | 20.12.14 | 1:350 (A3) | ML.C1.01 |

| | | | |
|-----------------|--------------|-----------------|-----------|
| DESIGNED BY: | WARRANT NO.: | CHECKED BY: | DRAWN BY: |
| ING. J. ALOISIO | 759 | ING. J. ALOISIO | R.MIFSUD |



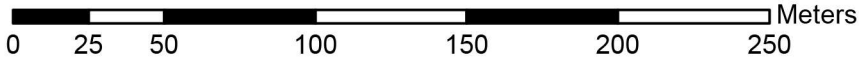
Perit Mark Abela
Architect & Civil Engineer
 Block G, Flat 3, G.H.E.,
 Rabat - PBT 4034
 Mob: (+356) 7926 1399

◆ cesspit location

Ta' Wied
 il-Kneijies

TRIQ ANTON FALZON

TRIQ IL-FDAL TAL-MADDI



1:2,500

Date Printed: 01/07/2017

Public Geoserver

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 Data Captured from: 1988, 1994, 1998, 2004 & 2008 aerial photography and updates from 2012 orthophotos.
 Truncated U.T.M. Coordinates. Levelling Datum M.S.L. (Mean sea level). Contours when shown are at
 2.5m vertical interval. Not to be used for interpretation or scaling of scheme alignments
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PLANNING AUTHORITY

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10th September 2014

The Chairman Malta Planning and Environmental Authority Floriana

Site Details

Proposal: The construction of an oil separator within a scrap yard in conformance to EN 858-1 and EN 858-2 standards

Applicant Details

Applicant: Mr. Matthew Fenech Magrin
Mob No: +356 7905 3463
Tel. No.: +356 2166 7855
Website: www.metalcoltd.com

Architect: Mr. Joe Bugeja

ECL CONSULTING ENGINEERS

ING. JOHAN ALDISIO
WARRANT NR: 759

+356 9986 8828 E:JA@ECLCE.COM

Dear Sir,

We refer to the proposed development in caption previously, design being submitted by Architect Joe Bugeja on behalf of the client, Mr. Matthew Fenech Magrin, below please find our comments and recommendations.

1.0 Rain Water Collection Cesspit

A rain water discharge cesspit already existed within this scrap yard for collection of rain water collection from the various collection gutters within the yard. The cesspit has physical dimensions of 12.0m (L) x 6.0m (W) x 12.0m (H), whose dimensions conform to Schedule 1 Activity 43 of Legal Notice 106 of 2007. It also has direct access through two (2) in number manholes.

2.0 Oil Interceptors

Two in no. oil interceptors, each with a treated volume capacity of 2,850L and discharge flowrate of 10L/s, have been installed within this yard. The installed interceptors are Class I polyethylene hydrocarbon decanter-separators and comply with EN 858-1 and EN 858-2 standards.

All interceptors compartments are easily accessed for inspections and maintenance and the waste water treatment takes place in two phases:

- Settling of sludge and sand in the decanter sand trap compartment
- Separation of oil and hydrocarbons through the coalescing effect

3.0 Water Collection

Existing floor drains are connected by means of a buried PVC pipe work, discharging rain water collected to the oil interceptors. The discharged water from the interceptor then flows to the existing rain water cesspit and then overflows to street level.

4.0 Site Installation Figures



Figure 1: Setting out of separator 1 and discharge fluids pipework prior to excavation



Figure 2: Location of separator 1 and discharge fluids pipework prior to excavation

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Figure 3: *View of the excavated area for the installation of one of the oil interceptors*

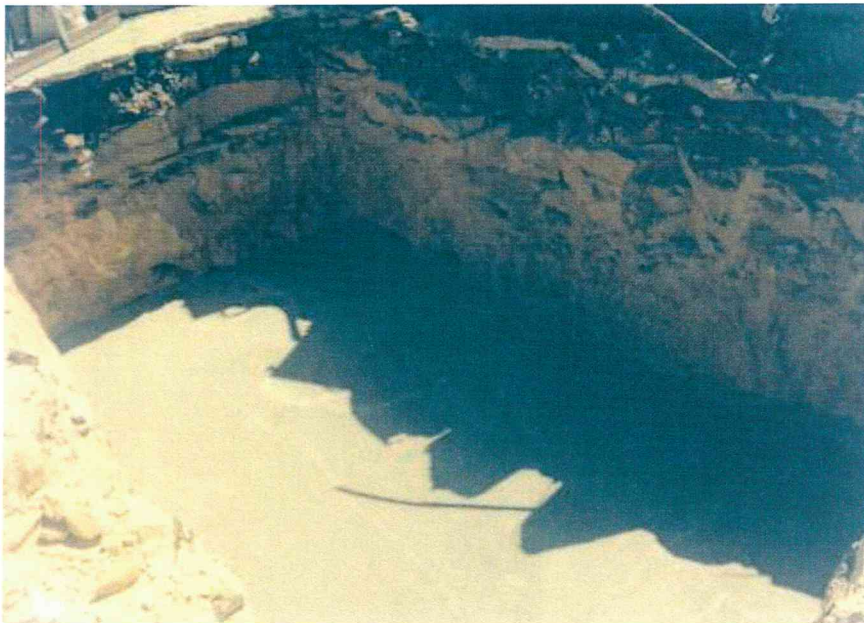


Figure 4: *Concrete bedding for the interceptor*

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Figure 5: *View of one of the installed oil interceptors*



Figure 6: *View of one of the installed oil separators during the construction process*

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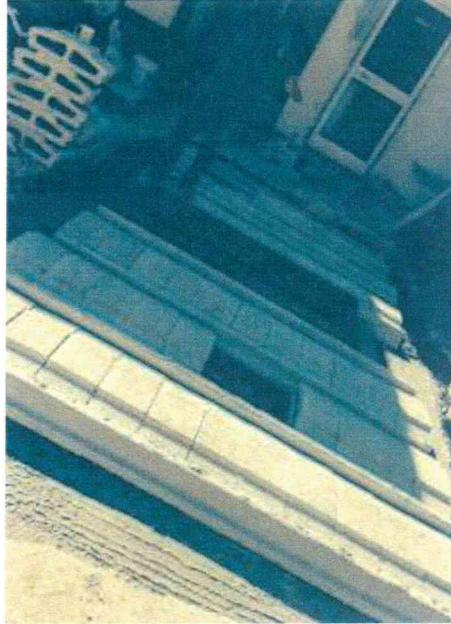


Figure 7: *View of the interceptor roofing*



Figure 8: *View of the oil interceptor prior to installation*

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Figure 9: View of the other excavated area for the 2nd oil interceptor



Figure 10: View of the other installed oil interceptor



Figure 11: *Another view of an installed oil interceptor*

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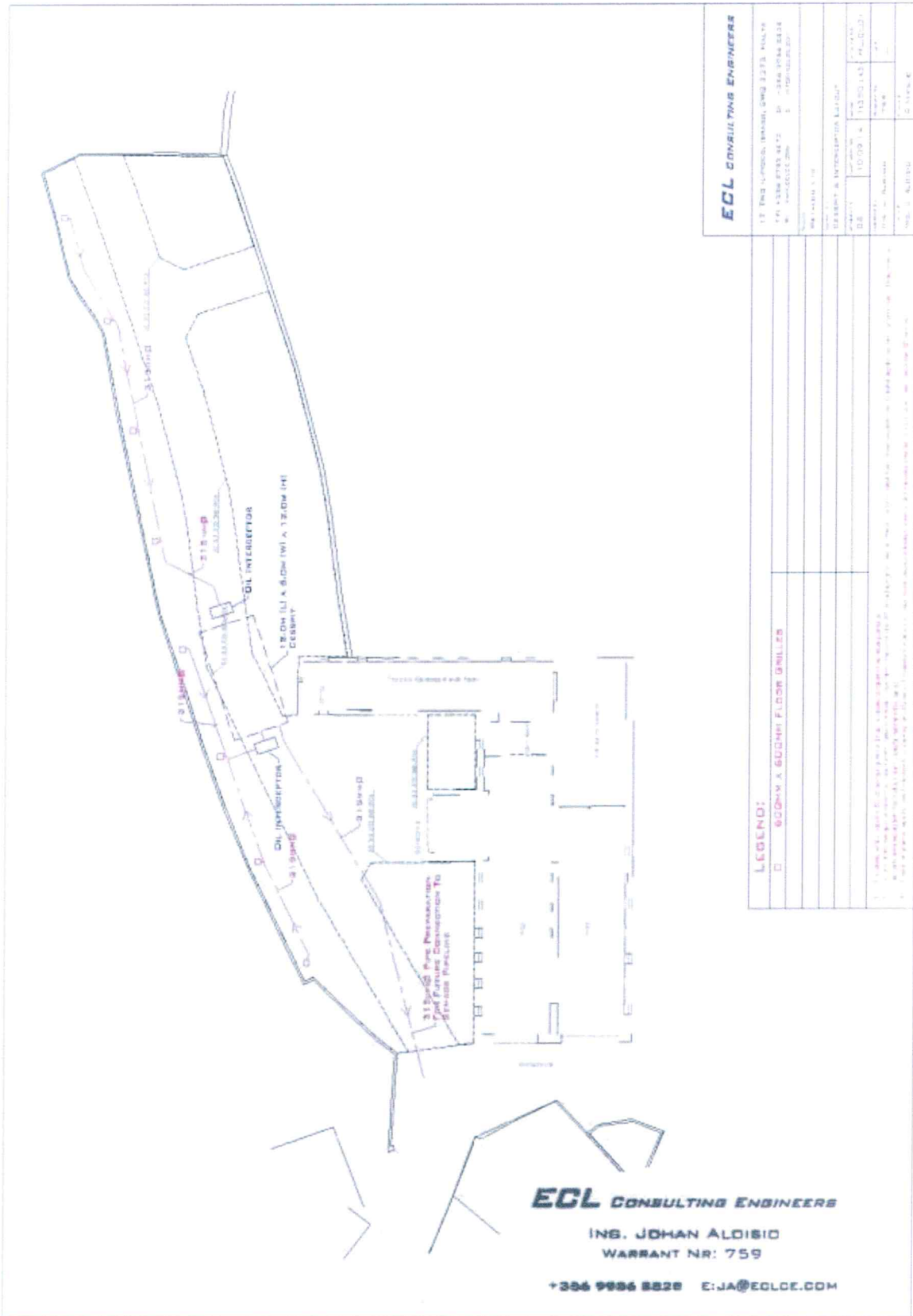


Figure 12: View of the 'As Built' plan

5.0 Site Installation Figures

The installed interceptors within the yard are in accordance to EN 858 and are factory certified. The requirements were implemented to enhance the protection of water to ground water table and consequently, it is imperative that the administrators are made aware of their function and operation, and kept maintained throughout the entire period of use of the yard.

To this effect, the administration of the building shall provide for the annual inspection, testing and certification of these installations.

We trust the above is in line with your requirements, and should you require any further clarifications, please do not hesitate to contact us.

Regards



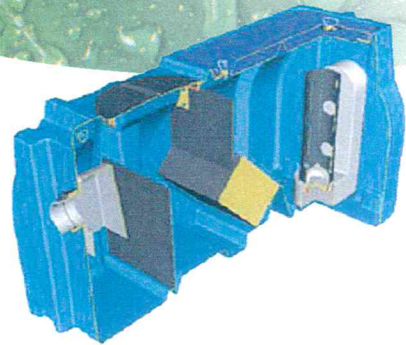
Ing. Johan Aloisio
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Oil Interceptor



AQUAPOLY OIL INTERCEPTOR

Patented and Registered Model

- CLASS I POLYETHYLENE HYDROCARBON DECANter-SEPARATOR
- COMPLIES WITH EN 858-1 AND EN 858-2 STANDARDS
- CE CERTIFIED
- GUARANTEED ≤ 5 MG/L OUTPUT

USES

- SERVICE STATIONS
- CAR WASHES
- REPAIR SHOPS ETC



TECHNICAL FEATURES

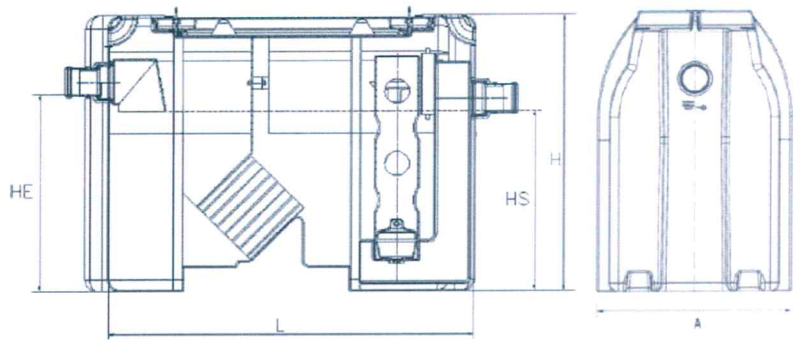
The Aquapoly Hydrocarbon Decanter-Separator is specifically designed with a lamellar coalescing effect and for a large retention capacity. All compartments are easily accessed for inspections and maintenance. Treatment takes place in two phases:

- Settling of sludge and sand in the decanter-sand trap compartment
- Separation of oil and hydrocarbons through the coalescing effect

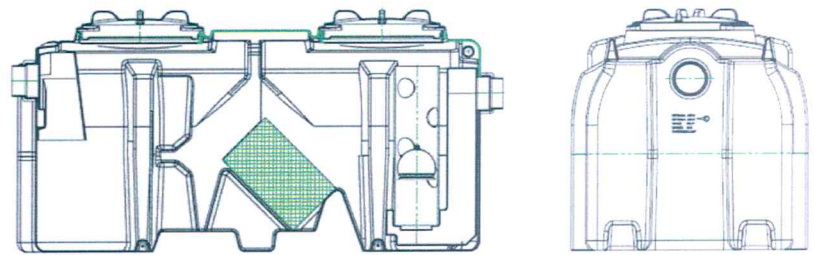
TECHNICAL FEATURES

Treatable wastewater is retained in the settling compartment located at the head of the hydrocarbon separator, where sludge and sand are retained. The stream of water - now free of sludge and sand - flows to a separation compartment, equipped with a block of polypropylene lamellar cells that provide a coalescing effect which separates the hydrocarbons. An automatic shutter system prevents accidental hydrocarbon spillage if the hydrocarbon level overflows, thus preventing hydrocarbons from entering the water system.

The system can also be equipped with an oil / sludge level sensor to give an alarm when system needs desludging.



AquaPOLY01 and AquaPOLY03



AquaPOLY06 and AquaPOLY10

| Model | Flow lt/s | Volume of oil/ hydrocarbon Retention lt. | Volume Treated lt. | L mm | A mm | H mm | He mm | HS mm | Inlet/ outlet mm |
|------------|-----------|--|--------------------------|------|------|------|-------|-------|---------------------|
| AquaPOLY01 | 1.50 | 150 | 620 | 1570 | 1180 | 1058 | 823 | 753 | 110 |
| AquaPOLY03 | 3 | 210 | 1200 | 1570 | 1180 | 1200 | 965 | 895 | 110 |
| AquaPOLY06 | 6 | 350 | 1800 | 2300 | 1180 | 1212 | 785 | 715 | 160 |
| AquaPOLY10 | 10 | 460 | 2850 | 2300 | 1180 | 1662 | 1235 | 1165 | 160 |

**FM Environmental reserves the right to change the measurements

Contractual document.
The data and values
are given as an indication
and are subject to change



HEAD OFFICE

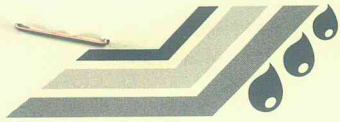
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Waste Oils Company Limited

42, Spencer Hill, Marsa HMR 1955 - Malta
Tel: 00356 21 246 398, 21 246 386, 21 440 721
Fax: 00356 21 248 499
E-Mail: info@wasteoils.com.mt

CN-123697

A
ources

Chit No.: **№ J21746** Order Date: 23/01/13

Collection Date: _____

Client: Metalco Ltd.

Address: Luqa.

Telephone No.: _____ Mobile: _____

Description: Removal of 6 CBM waste oil by vacuum

Price incl. VAT: €83.50 per 1,000 lbs Total: _____

Driver: Jason Cassar Vehicle No.: EBF307

Client

Waste Oils Company Ltd
42, Spencer Hill,
Marsa HMR 1955, Malta
For Waste Oils Co. Ltd.

DORMAX PRESS - MARSA

WOC 010/C

C) CARRIER'S CERTIFICATE

I certify that I today collected the consignment and that the details in A1, A2 and B1 are correct. The quantity collected is: 6 CBM

| | |
|---|--|
| 1. Name & Surname <u>Jason Cassar</u> | 3. Waste Registration no. _____ |
| On behalf of <u>WASTE OILS CO. LTD.</u> | 4. Vehicle reg. no. (or mode of transport if not road) <u>EBF307</u> |
| Address <u>SPENCER HILL</u> | 5. Email: <u>info@wasteoils.com.mt</u> |
| <u>MARSA MRS 1955</u> | |
| 2. Carrier Tel. No. <u>21 246 398</u> | 6. Signature _____ |
| Carrier Fax. No. <u>21 248 499</u> | 7. Date <u>23/01/13</u> Time _____ |

D) CONSIGNOR'S CERTIFICATE

I certify that the information in A, B and C above is correct, that the carrier is registered and was advised of the appropriate precautionary measures.

| | |
|--|---|
| 1. Name & Surname <u>Mario Cremona</u> | 2. On behalf of <u>Metalco Ltd</u> |
| Address <u>48 scrap lane</u> | 3. Email: <u>woc@metalco.ltd.com</u> |
| <u>Vettotta Road Luqa</u> | 4. Signature <u>M. Cremona</u> Date _____ |

E) CONSIGNEE'S CERTIFICATE

| | |
|--|--|
| 1. I received this waste on _____ at _____ hrs. | 2. Quantity received (include units kg / ltrs / tonnes etc): _____ |
| 3. Vehicle registration no. _____ | 4. Type of disposal/recovery operation ^a <u>R 13</u> |
| 5. I certify that waste management permit/registration no. _____ | authorises the management of waste described in B. |
| 6. WASTE MANAGEMENT FACILITY | 7. Signature & Stamp _____ |
| On behalf of _____ | |
| Address _____ | |
| 8. Date _____ | Time _____ |

PLEASE COMPLETE IN BLOCK CAPITALS
THE PRENOTIFICATION COPY SHOULD BE EMAILED ON: contact.cn@era.org.mt
AND THE ORIGINAL COPY SHOULD BE DELIVERED BY MAIL TO THE ADDRESS ABOVE

a. See attached list

This Document contains 5 Forms

Appendix XI

**Land and groundwater monitoring proposal and groundwater
investigation report**

Dr. George Peplow

B.Sc.(Hons.)(Lond.), M.Sc.(Salford), Ph.D.(Salford), EurChem, C.Chem., F.R.S.C.

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Sliema SLM 3130
Malta.

Tel/Fax: +356 21 311665,

Mobile: +356 9947 0204,

E-mail: peplowg@gmail.com

REPORT REFERENCE: Version 1.5

REPORT DATE 21 October 2020

TO
Mr Matthew Fenech Magrin
Metalco Limited
48 Scrap Lane - Valletta Road - Luqa - LQA 03 - Malta
Tel: +356 21667855 | Fax:+356 21667833| Email: info@metalcoltd.com

Dear Mr Fenech Magrin

In terms of ERA's details, we wish to submit the following resume which outlines the changes made in this report:

Comments regarding the renewal and variation of the IPPC permit for Metalco Ltd.

ERA comments on baseline survey method statements for Metalco Ltd. as per obligation of IP 0002/13/A, and Variation covered by Application IP 0002/13/B.

Part 1:

| No. | ERA comments on Report dated 09 th May 2020 (following meeting held 22.04.20) | Applicant response provided in Report dated 29 th July 2020 | ERA comments on Report dated 29 th July 2020 | Applicant response provided in Report Version 1.5 dated 22 October 2020 |
|-----|--|--|---|---|
| | <p>General comment: In view of the submissions made as per IP 0002/13/B, the site of the installation is noted to have been extended. The reports relating to Site History, CSM, Risk Assessment and L&GW investigation are to be updated in include such updates in plans. The reports are to be updated so that Site History, CSM, Risk Assessment and L&GW investigation take into consideration this additional area.</p> | | <p>The site history, risk assessment and all documentation related to the CSM are to be included as part of this report in a singular, continuous, and consolidated manner. Ing. Cremona's report may be included as an annex to the CSM.</p> | <p>The document is being presented as a single consolidated report. Ing M Cremona's report is attached.</p> |
| 1 | <p>Section 3: The CSM is to include further details of hydrology in direct relation to the site covering aspects of any aquifers present on site and their depth, if any (See Part 2, initial Comment 7 below for further details).</p> | <p>The hydrologist report is attached, forming part of this report.</p> | <p>No further comments.</p> | <p>No action</p> |
| 2 | <p>Section 3: The CSM is to also take into consideration activities of the areas surrounding the site which may also be sensitive receptors to any potential contamination.</p> | | <p>No further comments.</p> | <p>No action</p> |
| 3 | <p>Diagram 7: To be updated to include the location of BH2, BH D.</p> | <p>Inserted in Diagram 7</p> | <p>No further comments.</p> | <p>No action</p> |
| 4 | <p>Diagram 7: The site location is to be super imposed on the existing plan for relevance, especially in relation to BH1.</p> | <p>Diagram 8 has been added to show the site wrt to BH's notably BH1</p> | <p>No further comments.</p> | <p>No action</p> |

| | | | | |
|---|---|---|--|---------------------------------|
| 5 | Point 3.5 – Provision of analytical results being referred to from boreholes are to be provided. Limits against which results were compared are to be included. | We have inserted a note in 3.5 | A time frame of when such results will be communicated is to be provided. | We have inserted a note in 2.5 |
| 6 | Point 3.9: The ERA is in disagreement with works related to establishment of a baseline survey being carried out in-line with EMS report dated 18 th Feb. 2020 as said report is still to address feedback provided by ERA on 01 st December 2017 and pending approval. | | No further comments. | No action |
| 7 | Risk assessment: the risk assessments needs to take into consideration the potential sources of each of the pollutants, or groups of pollutants, being considered for analysis and their possible source from the wastes and activities present on site. Where possible, pathways for relevant pollutants to sensitive receptors are to be separated as required. Hence this can be used as a justification for the necessity or omission of specific parameters in the analytical suite. | Point 4.2 elaborated to include the note on potential sources and pathways. | Comments re Risk Assessment | |
| | | | a. General Comment: Potential impact to land is to be included. | Pointed in 3.23.8 |
| | | | b. General Comment: The table is to be revised to include the origins of each hazard in relation to the site activities and the pollutants which may be released by each activity. | Table revised |
| | | | c. Liquid discharge; Probability of Exposure: Point 3.5 states that due to inclination of site, boreholes to the south and south-west, for which water quality data is available, will not be affected by the site's activities. Therefore, such data cannot be used to rule out the site's potential impact on aquifers. Exposure probability is to be revised. | Point 3.23.6 inserted |
| | | | d. Accidents: The hazard is to be revised to relate to potential impacts on land and groundwater. Probability of Exposure is to be revised based on the mitigation measures present on site. | 'accidents' in table elaborated |

| | | | | |
|---|-----|---|---|----------------------|
| | | | <p>e. Emissions to air: odours, dust from plant : The applicant is to note that this report relates to the site's potential impact on land and groundwater only. such as hazard is to be taken into account as part of the installation's monitoring plan. Aspect is to be removed.</p> | deleted |
| | | | <p>f. Emissions to air: smoke from plant: The applicant is to note that this report relates to the site's potential impact on land and groundwater only. such as hazard is to be taken into account as part of the installation's monitoring plan. Aspect is to be removed.</p> | deleted |
| 8 | - | - | Point 4.4: Further details as to how the conclusion of the site's impact was made are required. | Section 3.22 amended |
| 9 | N/A | | Point 3.8: The ERA is in disagreement that illegal dumping of domestic waste can be excluded given the information provided in Points 2.7 & 2.11. Point 3.8 is to be removed. | deleted |

Land and Groundwater Investigations.

IPPC Permit IP 0002/13/A in the name of Metalco Ltd requires the sampling and analyses of land and ground water samples, collected within the Metalco facilities.

EMS Ltd shall prepare a Full Report based on the standard ERA requirements and shall include the following:

- 1.0 Site History.
- 1.1 Metalco Ltd has been in operation since 1988. It operates as an offshoot of Fenech & Cremona. Originally the firm was started right after World War I where hides, glass and metals were recycled for export to Italy.
- 1.2 The extension has been operated by third parties since the 1960's, used exclusively for the collection, packaging and export of mixed metal wastes. Most recently, the extension area was also used to store and package vehicle tyre wastes for eventual export.
- 1.3 Metalco specializes in the recycle of ferrous and non-ferrous metal scrap such as copper, brass, lead and aluminium, and also in the shredding of various types of materials such as mattresses and confidential documents.
- 1.4 Metalco Ltd is dedicated to being one of the leading producers and exporters of recycled scrap materials by using the most effective, modern and innovative methods in scrap recovery and to establish and maintain a fully environmentally friendly waste management facility.
- 1.5 The delineated area of the plant is shown in Diagram 1, which shows that most of the area except the north-eastern part is being used for the recycling of scrap metals. The north-eastern part is dedicated to agriculture, albeit that it is proposed to be included in the plan.
- 1.6 Diagrams 2 to 4 show that the site has made only slight changes and the original activities have been retained.
- 1.7 Due to the open access to the area from the adjacent Luqa Road, past illegal dumping of domestic wastes is not excluded.
- 1.8 The area has been private property since 1920's and the dumping of military or industrial wastes is most unlikely, considering that the site has been used for recycling and export since these dates.
- 1.9 It must be pointed out that the northern and north easterly strip outside the area earmarked for the Metalco development, is another third party scrap metal facility.
- 1.10 No records or any other indications suggest any gross incinerations on site.
- 1.11 The area has been used as a private scrap metal site, assuming occasional domestic dumping prior to 1988.
- 1.12 The Site History shall be based on available information and our expert judgment.



Diagram 1. Current site Layout with proposed Site Outlines

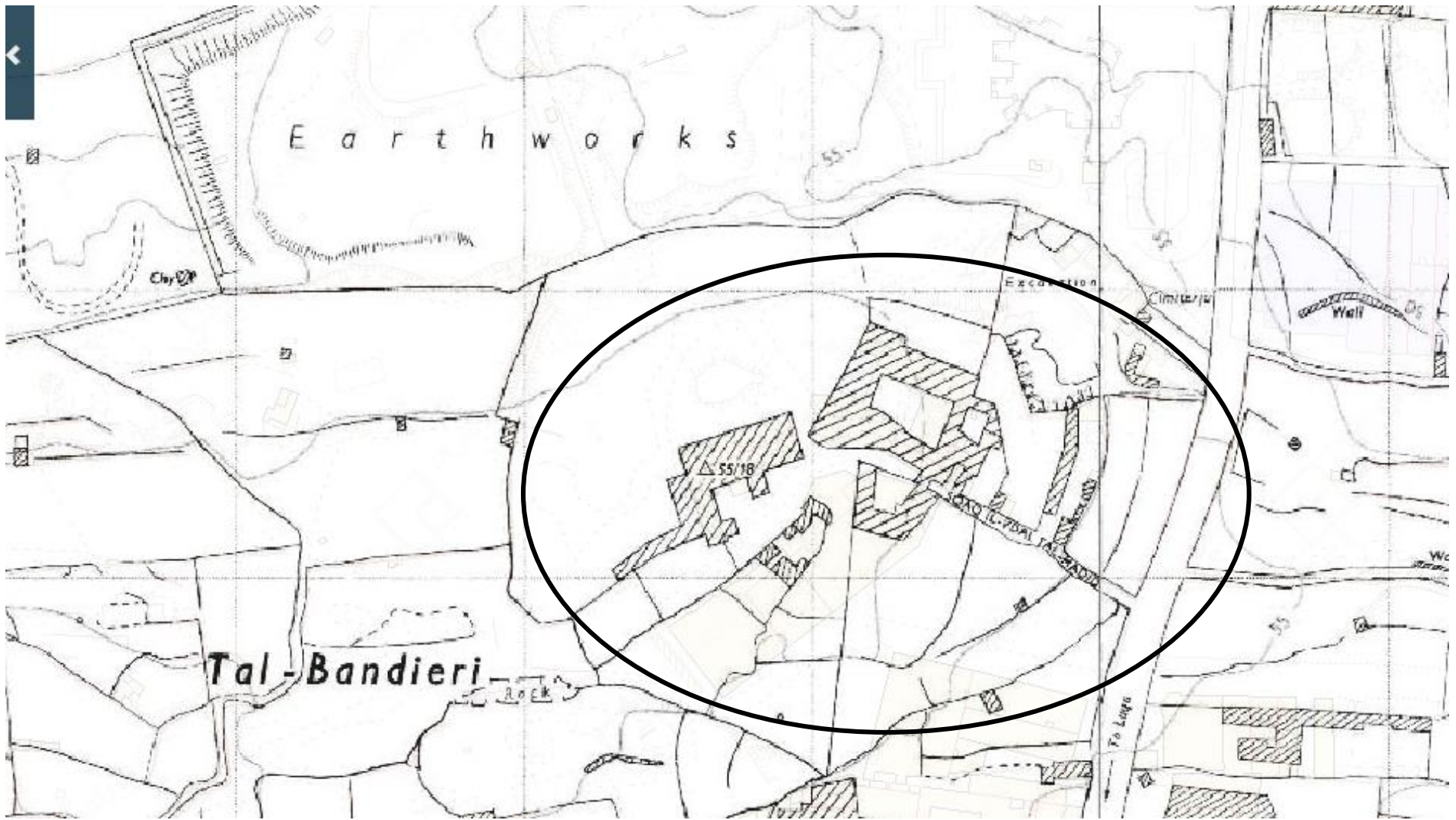


Diagram 2. A 1968 Survey Plan of the Site



Diagram 3. A 1998 Site Diagram



Diagram 3. A 2008 Site Diagram

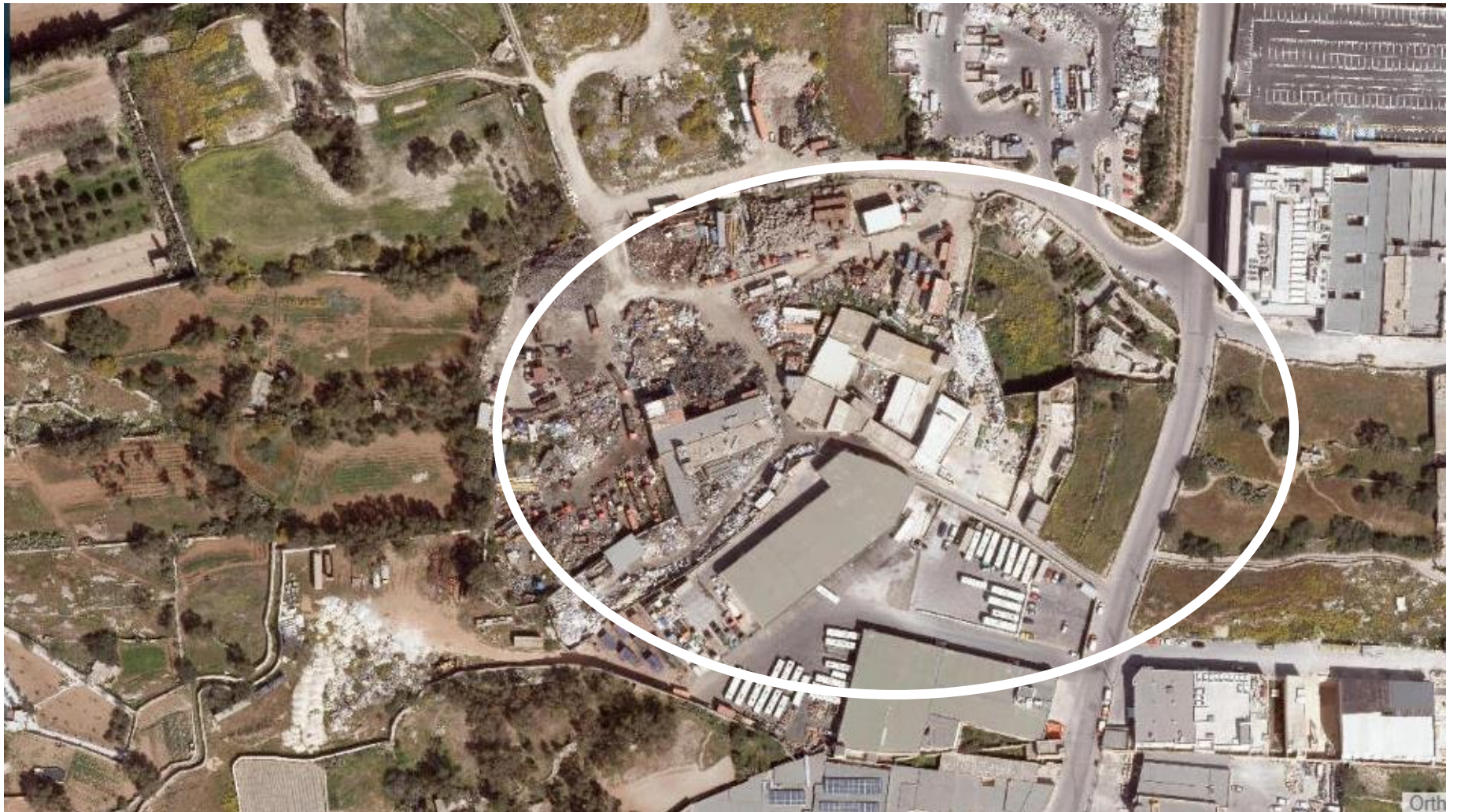


Diagram 4. A 2016 Site Diagram



Diagram 5 Site elevations from sea level.

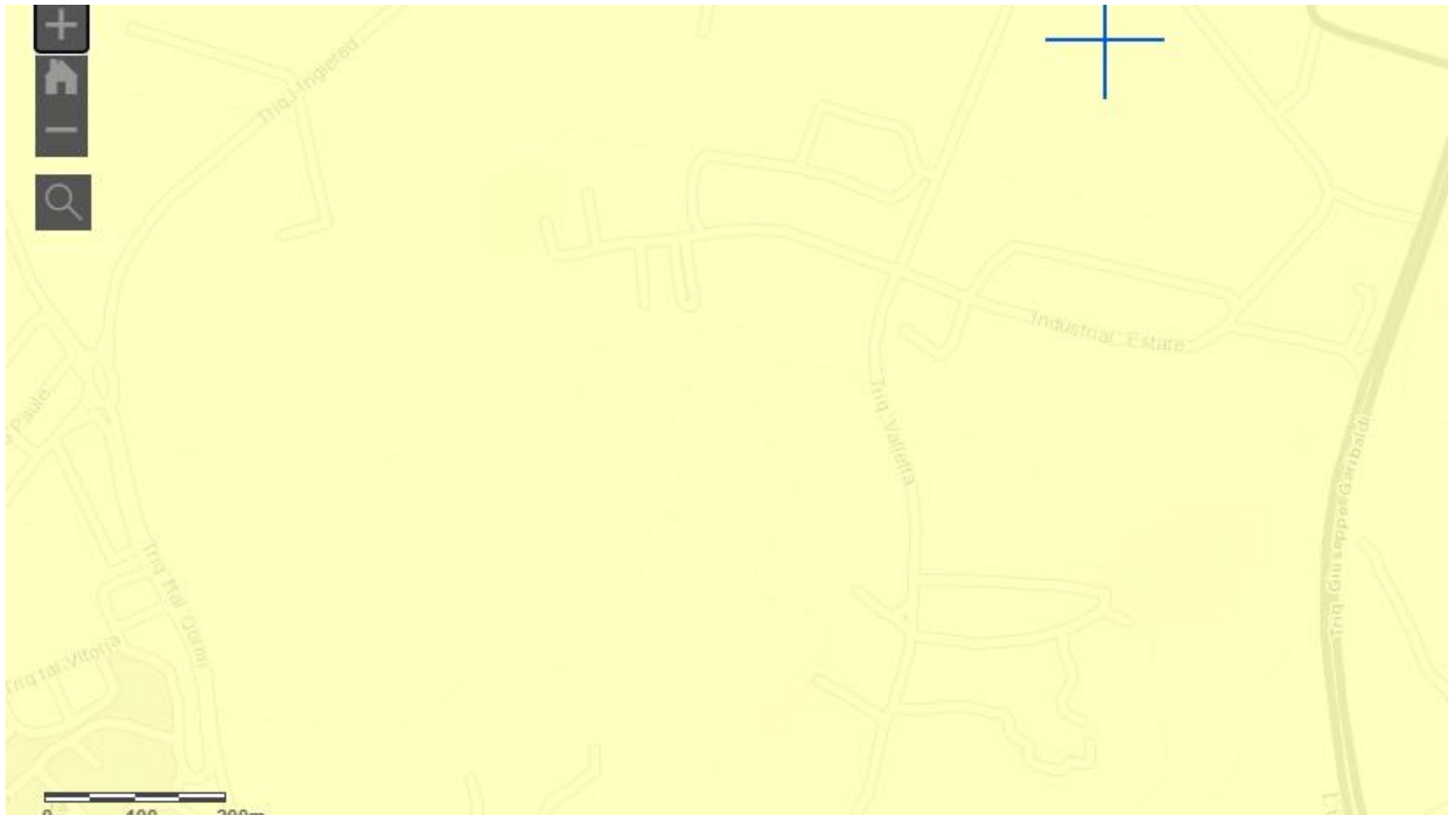


Diagram 6. Geology of the Triq il Belt Valletta region

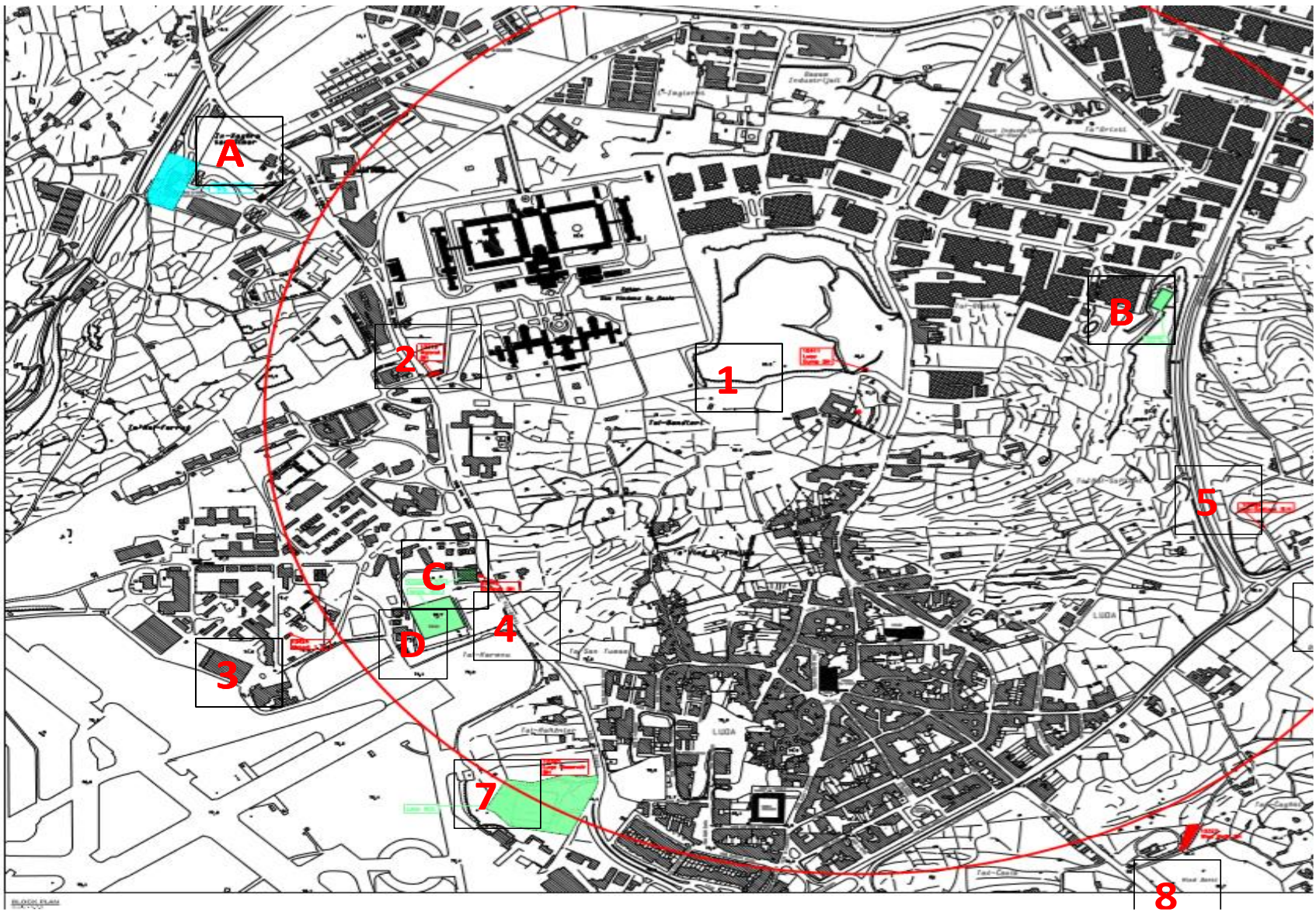


Diagram 7. Location of WSC-Registered Boreholes and Reservoirs.

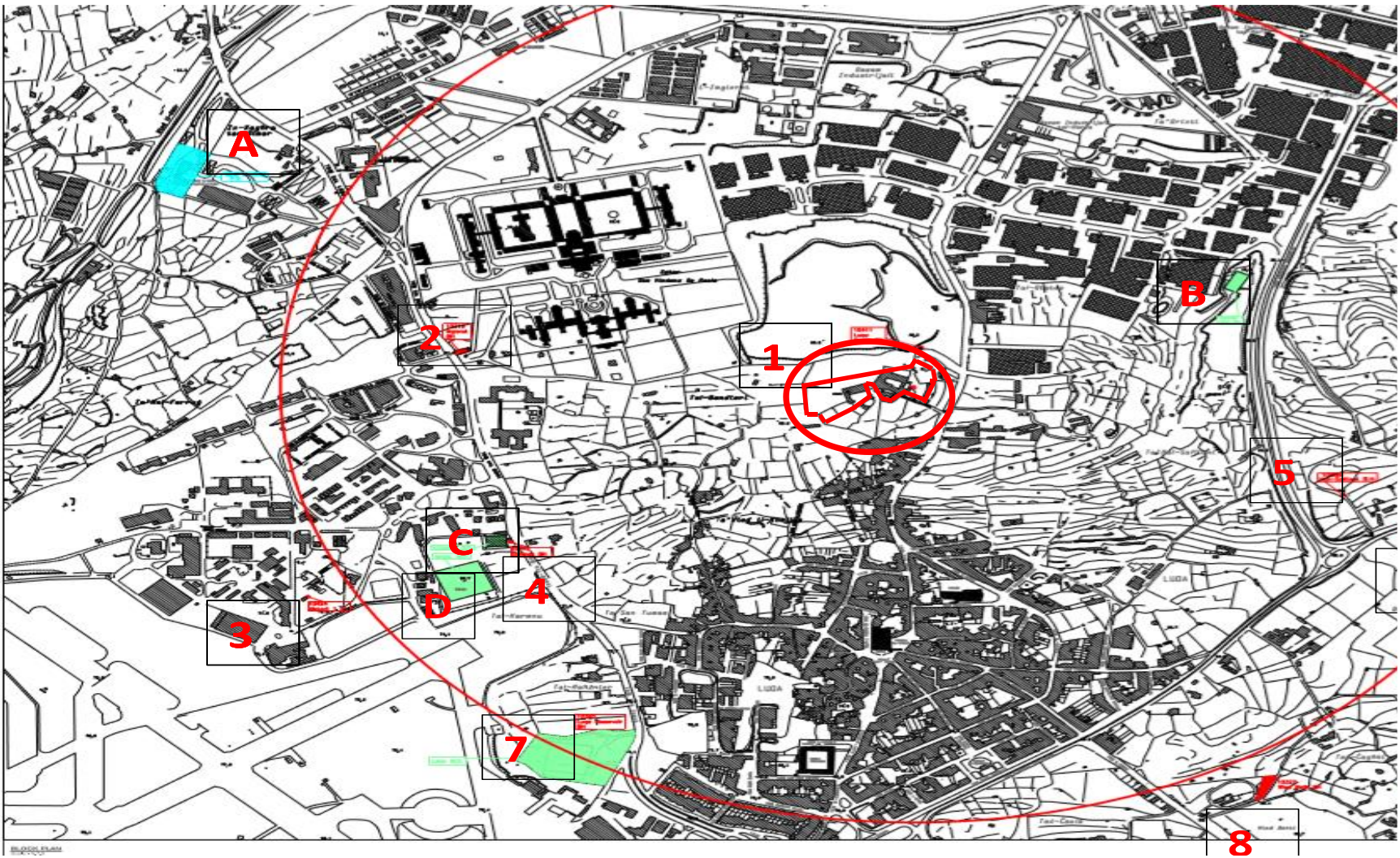


Diagram 8. Location of Proposed Site Area with respect to the Borehole Locations, notably BH1, Luqa Dump.

- 2.0 Conceptual Site Model (CSM).
- 2.1 The site of the Metalco Plant has an incline of about 15 m over a width of about 200m, towards the north east. This incline works out at less than 5° incline.
- 2.2 It must be pointed out however that the area to the north east end of the plant is perched at a height of 8 m above the agricultural area,
- 2.3 The site lies on a Lower Globigerina region as can be verified from Diagram 6.
- 2.4 Diagram 7 and 8 indicate the locations of the registered boreholes and water resources for the area, which are listed as follows:

Legend of Diagram 7: Description of WSC-Registered BH and Wells.

| MAP LOCATION REF | REGISTRATION AND DESCRIPTION |
|------------------|---|
| 1 | 10411 Luqa Dump Borehole (adjacent to Site) |
| 2 | 10319 Mgieret BH |
| 3 | 10424 Airport 1 BH |
| 4 | 10176 Schinas BH |
| 5 | 10084 Hal Saflieni BH |
| 6 | 10320 Garibaldi BH |
| 7 | 10385 Luqa Reservoir BH |
| 8 | 10322 Wied Betti BH |
| A | Wied il Kbir PS |
| B | Garibaldi Open Reservoir |
| C | Schinas Reservoir |
| D | Naval Reservoir |

- 2.5 In view of the incline of the region towards the north east, any water percolation from the site area could not and will not influence the boreholes and aquifers to the south west. Indeed, the waters of these boreholes have be analytically measured for several years and no water contaminants have ever been reported. The analytical results shall be obtained from the WSC, evaluated with respect to the Water Directive, and submitted to ERA as a separate report. The laboratory turnaround time is 12-15 working days, with the assessment in the final report
- 2.6 No segregation or isolation of wastes has ever been conducted within the site, and therefore all the site areas are being considered to have the same level of potential contamination.
- 2.7 The recorded and assumed uses of the site over the past 50 years are being considered to be for the handling and processing of different types of metals.
- 2.8 The borehole analytical data shall be tied to the analytical data obtained from the other boreholes as well as the water samples intended to be sampled.

- 2.9 The final CSM shall include details of geological rock formation with information concerning water catchments, registered boreholes, and reservoirs around and beneath the site.
- 2.10 Detailed Conceptual Site Model (CSM) that shall be constructed from the site history description, geological/ hydrological profiles, site maps, vertical profiles, sampling, and analytical data.
- 2.11 The CSM, with the aid of the analytical measurements, shall be able to:
 - 2.11.1 identify and quantify the pollutants which have contaminated the site, with specified contaminants by specified activities and sources,
 - 2.11.2 the extent of any sub-surface rocks, soils or groundwater that were most likely to have been contaminated with specified activities and sources,
 - 2.11.3 the hydrologist assessments of the rock and water quality evaluation. The MS of the hydrologist is attached.
- 3.0 Work Plan and Risk Assessment.
- 3.1 The risks associated with the site refer to the potential contamination from the pollutants on the land and ground water quality, with respect to the current and future safe use of the site, as well as the sensitive receptors.
- 3.2 For this purpose, a number of boreholes are being proposed to sample the rock at several points, each at different rock depths.
- 3.3 The results assessments shall identify the area of influence at the ground and sub surface of the area in order to justify the area of influence proposed for the preliminary investigation for sampling and analysis.
- 3.4 The risk assessment shall include the number of samples, location, and depths of sampling point. Priority shall be given to the water in the site borehole which shall be sampled and analyzed.
- 3.5 Groundwater sampling shall also be carried out, making use of existing boreholes. The proposed number of borehole samples shall be THREE including the borehole on the site.
- 3.6 Drilling for core samples shall be carried out by authorized contractors.
- 3.7 The core sampling and analytical measurements shall be conducted as follows:
 - 3.7.1 Since most of the identified land area consists of a disused quarry, **the total number of core samples shall be 5 (FIVE)**, collected from the areas which have been in use over the past years.
 - 3.7.2 Each core sample shall be analyzed at **FOUR different core depths, according to ERA guidelines, giving a total of 20 samples for laboratory analysis.**
 - 3.7.3 Analysis of each of the 20 core samples shall be analyzed according to ISO, EN or EPA standard methods at an accredited laboratory, for the following list of contaminants, considered to be representative for the past historical use of the site as a metal scrap yard:

- 3.7.3.1 A total of SEVEN heavy metals: copper, lead, cadmium, chromium, mercury, tin, antimony, zinc, nickel and arsenic.
- 3.7.3.2 Chromium (IV).
- 3.7.3.3 Total hydrocarbons <C₁₂, >C₁₂.
- 3.7.3.4 Total cyanides
- 3.7.3.5 PAHs.
- 3.7.3.6 PCBs.
- 3.7.3.7 Chlorinated aliphatic hydrocarbons.
- 3.7.3.8 Halogenated aliphatic hydrocarbons.
- 3.7.3.9 Dioxins and furans.
- 3.7.3.10 BTEX.
- 3.7.3.11 Asbestos.

NOTE: A FULL LIST OF THESE PARAMETERS SHALL BE PROVIDED SHORTLY, AS SOON AS IT IS SUBMITTED BY OUR LABORATORY. THE LIST SHALL INCLUDE THE LoR, METHODOLOGY BRIEF, UNITS.

- 3.8 Sampling and monitoring strategy shall be in line with the requirements of European Commission Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on industrial emissions (2014/C 136/03).
- 3.9 A Waste Management Report shall be discussed at a later stage with ERA.
- 3.10 Sampling and analysis of groundwater shall be included. The analytical list shall be the same as for the rock sample analytical measurements.
- 3.11 Drilling rigs used for coring and sampling shall be registered with the competent authority as per Registration of Drilling Rigs Regulations (SL 545.06).
- 3.12 The drilling equipment shall be washed with clean water after each sampling activity; this exercise shall be carried out away from the sampling locations in order to avoid cross-contamination.
- 3.13 Capping of boreholes shall be backfilled in line with the current surface present in the specific area. The use of asphalt shall be prohibited.
- 3.14 Any soil wastes produced during the soil sampling which are to be discarded as waste, shall be managed according to the relevant national and European legislation.
- 3.15 All core samples and sectioned samples shall be photographed, labelled, and logged before being sent to the laboratory. A record shall be kept of any visual or olfactory evidence of contamination (e.g. stains, hydrocarbon odours).
- 3.16 TWO different types of sample containers for dispatch to the lab:
 - 3.16.1 aluminium foil for organic substances, sealed in high density plastic bottles;
 - 3.16.2 acid washed glass jars for metals.
- 3.17 Samples shall be contained immediately upon the coring operation. The samples shall be kept at 4°C and dispatched by courier to our accredited lab in the EU.
- 3.18 Diagram 9 shows the proposed locations of the boreholes, with the following GPS locations:

| SAMPLE NO | Coordinates east | Coordinates north |
|-----------|------------------|-------------------|
| 1 | 453925.47 | 3969176.95 |
| 2 | 453822.58 | 3969136.60 |
| 3 | 453778.86 | 3969093.17 |
| 4 | 453762.65 | 3969121.23 |
| 5 | 453810.16 | 3969162.37 |

- 3.19 The proposed location of the land contamination sampling points is shown in Diagram 9.
- 3.20 The justification is as follows:
 - 3.20.1 Sampling point 1. The former quarry which is projected to be backfilled.
 - 3.20.2 Sampling points 2, 3,4 and 5 on the sites formerly used to stock waste metals.
- 3.21 The proposed location of the borehole water samples have been proposed by the WSC via an email submitted by Ing Derek Mifsud dated 4 January 2019. The sampling points are shown in Diagram 10, further down. The justification is as follows:
 - 3.21.1 Sampling point 1. A borehole down the hill from the site.
 - 3.21.2 Sampling point 2 from a site which is used by sensitive receptors.
 - 3.21.3 Sampling point 3. BH located on site.
- 3.22 The Risk Assessment relevant to the past activities on the site, as well as activities which are currently in progress or projected at the plant must identify whether any of the following risks could occur and what the environmental impact could be:
 - 3.22.1 any liquid discharge, for example sewage, leachings or trade effluent to surface or groundwater,
 - 3.22.2 accidents,
 - 3.22.3 odours, uncontrolled or unintended (“fugitive”) emissions, for which risks include dust, litter, pests and pollutants that should not be in the discharge,
 - 3.22.4 visible emissions, for example smoke or visible plumes,
 - 3.22.5 noise and vibrations,
- 3.23 For each risk that applies each actual or possible hazard shall be assessed in terms of the following:
 - 3.23.1 the hazard – for example dust, bioaerosols, litter, type of visible emission,
 - 3.23.2 the potential waste sources and waste processes that causes the hazard, for example shredding and turning green waste,
 - 3.23.3 the receptors – people, animals, property and anything else that could be affected by the hazard,
 - 3.23.4 the pathways – how the hazard can get to a receptor,
 - 3.23.5 what measures to take to reduce risks,
 - 3.23.6 probability of exposure, whether a risk is unlikely or highly likely,
 - 3.23.7 consequences – what harm could be caused,
 - 3.23.8 potential impact to the land in terms of ground and water hazards,
 - 3.23.9 what the overall risk is, based on what is stated,

| | | |
|---|--|---|
| Hazard | Liquid discharge | Accidents |
| Possible origins of hazard | Accidental spillages of stocked drums. | working from heights |
| Possible released pollutant | Fuel oils | N/A |
| Receptor | Water aquifers and adjacent boreholes and road | Workers during loading or unloading, plant or equipment failure, fire, vandalism, flooding, drop or damage a drum from a forklift |
| Pathway | Rock seepage; adjacent Valletta Road | All over the plant |
| Risk management techniques | Surface water effluent controlled over the adjacent 3 rd party scrap yard; a water cistern shall be built to collect all water effluent. Solid metal wastes have extremely low solubility | Adequate personnel training and PPE available for employees |
| Probability of exposure | Unlikely exposure based on past historic borehole water quality. | Unlikely due to training and PPE as well as past history. Doctor and clinic on call |
| Consequence | High levels of heavy metal cation levels in borehole water. | May lead to serious injuries in occurrence |
| Overall risk. | Extremely low due to the low solubility of the metal wastes and natural land filtration | Extremely low due to training and history |
| Activities with possible Pollutant release | Storage of metals on site | Leaching to land and ground water. |
| Origins of pollutant release | Stocked metal material | |



Diagram 9. Location of Land Contamination Sampling Points, 1, 2 and 3



Diagram 10. Location of Borehole Sampling Points, 1 and 2 .

| | Method | Unit | LOR |
|---|--------------|----------|-------|
| Aggregate Parameters | | | |
| Actinolite | S-SO-ASB-OMI | | |
| Amosite | S-SO-ASB-OMI | | |
| Anthophyllite | S-SO-ASB-OMI | | |
| Asbestos | S-SO-ASB-OMI | | |
| Chrysotile | S-SO-ASB-OMI | | |
| Crocidolite | S-SO-ASB-OMI | | |
| Tremolite | S-SO-ASB-OMI | | |
| BTEX | | | |
| Benzene | S-VOCGMS01 | mg/kg DW | 0.010 |
| Ethylbenzene | S-VOCGMS01 | mg/kg DW | 0.020 |
| Sum of BTEX | S-VOCGMS01 | mg/kg DW | 0.090 |
| Sum of TEX | S-VOCGMS01 | mg/kg DW | 0.08 |
| Sum of xylenes | S-VOCGMS01 | mg/kg DW | 0.030 |
| Toluene | S-VOCGMS01 | mg/kg DW | 0.030 |
| meta- & para-Xylene | S-VOCGMS01 | mg/kg DW | 0.020 |
| ortho-Xylene | S-VOCGMS01 | mg/kg DW | 0.010 |
| Halogenated Volatile Organic Compounds | | | |
| 1.1-Dichloroethane | S-VOCGMS01 | mg/kg DW | 0.010 |
| 1.1-Dichloroethene | S-VOCGMS01 | mg/kg DW | 0.010 |
| 1.1-Dichloropropene | S-VOCGMS01 | mg/kg DW | 0.10 |
| 1.1.1-Trichloroethane | S-VOCGMS01 | mg/kg DW | 0.010 |
| 1.1.1.2-Tetrachloroethane | S-VOCGMS01 | mg/kg DW | 0.010 |
| 1.1.2-Trichloroethane | S-VOCGMS01 | mg/kg DW | 0.040 |
| 1.1.2.2-Tetrachloroethane | S-VOCGMS01 | mg/kg DW | 0.050 |
| 1.2-Dibromo-3-chloropropane | S-VOCGMS01 | mg/kg DW | 0.10 |
| 1.2-Dibromoethane (EDB) | S-VOCGMS01 | mg/kg DW | 0.10 |
| 1.2-Dichlorobenzene | S-VOCGMS01 | mg/kg DW | 0.020 |
| 1.2-Dichloroethane | S-VOCGMS01 | mg/kg DW | 0.050 |
| 1.2-Dichloropropane | S-VOCGMS01 | mg/kg DW | 0.10 |
| 1.2.3-Trichlorobenzene | S-VOCGMS01 | mg/kg DW | 0.020 |
| 1.2.3-Trichloropropane | S-VOCGMS01 | mg/kg DW | 0.10 |
| 1.2.4-Trichlorobenzene | S-VOCGMS01 | mg/kg DW | 0.030 |
| 1.3-Dichlorobenzene | S-VOCGMS01 | mg/kg DW | 0.020 |
| 1.3-Dichloropropane | S-VOCGMS01 | mg/kg DW | 0.10 |
| 1.3.5-Trichlorobenzene | S-VOCGMS01 | mg/kg DW | 0.050 |
| 1.4-Dichlorobenzene | S-VOCGMS01 | mg/kg DW | 0.020 |
| 2-Chlorotoluene | S-VOCGMS01 | mg/kg DW | 0.10 |
| 2.2-Dichloropropane | S-VOCGMS01 | mg/kg DW | 0.10 |
| 4-Chlorotoluene | S-VOCGMS01 | mg/kg DW | 0.10 |
| Bromobenzene | S-VOCGMS01 | mg/kg DW | 0.10 |
| Bromochloromethane | S-VOCGMS01 | mg/kg DW | 0.20 |
| Bromodichloromethane | S-VOCGMS01 | mg/kg DW | 0.020 |
| Bromoform | S-VOCGMS01 | mg/kg DW | 0.040 |
| Bromomethane | S-VOCGMS01 | mg/kg DW | 0.10 |
| Chlorobenzene | S-VOCGMS01 | mg/kg DW | 0.010 |
| Chloroethane | S-VOCGMS01 | mg/kg DW | 0.10 |
| Chloroform | S-VOCGMS01 | mg/kg DW | 0.030 |
| Chloromethane | S-VOCGMS01 | mg/kg DW | 1.00 |
| Dibromochloromethane | S-VOCGMS01 | mg/kg DW | 0.020 |
| Dibromomethane | S-VOCGMS01 | mg/kg DW | 0.10 |
| Dichlorodifluoromethane | S-VOCGMS01 | mg/kg DW | 0.10 |
| Dichloromethane | S-VOCGMS01 | mg/kg DW | 0.080 |

| | | | |
|---|------------|----------|-------|
| Hexachlorobutadiene | S-VOCGMS01 | mg/kg DW | 0.10 |
| Sum of 3 Dichlorobenzenes | S-VOCGMS01 | mg/kg DW | 0.060 |
| Sum of 3 Trichlorobenzenes | S-VOCGMS01 | mg/kg DW | 0.10 |
| Sum of 4 Trihalomethanes | S-VOCGMS01 | mg/kg DW | 0.110 |
| Sum of 5 Chlorinated Ethenes | S-VOCGMS01 | mg/kg DW | 0.070 |
| Tetrachloroethene | S-VOCGMS01 | mg/kg DW | 0.020 |
| Tetrachloromethane | S-VOCGMS01 | mg/kg DW | 0.010 |
| Trichloroethene | S-VOCGMS01 | mg/kg DW | 0.010 |
| Trichlorofluoromethane | S-VOCGMS01 | mg/kg DW | 0.10 |
| Vinyl chloride | S-VOCGMS01 | mg/kg DW | 0.10 |
| cis-1,2-Dichloroethene | S-VOCGMS01 | mg/kg DW | 0.020 |
| cis-1,3-Dichloropropene | S-VOCGMS01 | mg/kg DW | 0.10 |
| trans-1,2-Dichloroethene | S-VOCGMS01 | mg/kg DW | 0.010 |
| trans-1,3-Dichloropropene | S-VOCGMS01 | mg/kg DW | 0.10 |
| Nonmetallic Inorganic Parameters | | | |
| 1,2,4-Trimethylbenzene | S-VOCGMS01 | mg/kg DW | 0.10 |
| 1,3,5-Trimethylbenzene | S-VOCGMS01 | mg/kg DW | 0.10 |
| 1,4-Dioxane | S-VOCGMS01 | mg/kg DW | 5.0 |
| 2-Butanone (MEK) | S-VOCGMS01 | mg/kg DW | 1.0 |
| Diisopropyl ether (DIPE) | S-VOCGMS01 | mg/kg DW | 0.020 |
| Ethyl tert-Butyl Ether (ETBE) | S-VOCGMS01 | mg/kg DW | 0.050 |
| Indane | S-VOCGMS01 | mg/kg DW | 0.10 |
| Isopropylbenzene | S-VOCGMS01 | mg/kg DW | 0.10 |
| Methyl isobutyl ketone | S-VOCGMS01 | mg/kg DW | 1.0 |
| Methyl tert-Butyl Ether (MTBE) | S-VOCGMS01 | mg/kg DW | 0.050 |
| Styrene | S-VOCGMS01 | mg/kg DW | 0.040 |
| Sum of BTEXS | S-VOCGMS01 | mg/kg DW | 0.130 |
| n-Butylbenzene | S-VOCGMS01 | mg/kg DW | 0.10 |
| n-Propylbenzene | S-VOCGMS01 | mg/kg DW | 0.10 |
| p-Isopropyltoluene | S-VOCGMS01 | mg/kg DW | 0.10 |
| sec-Butylbenzene | S-VOCGMS01 | mg/kg DW | 0.10 |
| tert-Amyl Ethyl Ether (TAEE) | S-VOCGMS01 | mg/kg DW | 0.050 |
| tert-Amyl Methyl Ether (TAME) | S-VOCGMS01 | mg/kg DW | 0.050 |
| tert-Butyl alcohol | S-VOCGMS01 | mg/kg DW | 0.80 |
| tert-Butylbenzene | S-VOCGMS01 | mg/kg DW | 0.10 |
| Total Cyanide | S-CNT-PHO | mg/kg DW | 0.10 |
| Total Inorganic Fluorine | S-F-ISE | mg/kg DW | 300 |
| Total Organic Carbon | S-TOC1-IR | % DW | 0.10 |
| PCB dioxin-like HRMS | | | |
| PCB 105 | S-PCBHMS02 | ng/g DW | |
| PCB 114 | S-PCBHMS02 | ng/g DW | |
| PCB 118 | S-PCBHMS02 | ng/g DW | |
| PCB 123 | S-PCBHMS02 | ng/g DW | |
| PCB 126 | S-PCBHMS02 | ng/g DW | |
| PCB 156 | S-PCBHMS02 | ng/g DW | |
| PCB 157 | S-PCBHMS02 | ng/g DW | |
| PCB 167 | S-PCBHMS02 | ng/g DW | |
| PCB 169 | S-PCBHMS02 | ng/g DW | |
| PCB 170 | S-PCBHMS02 | ng/g DW | |
| PCB 180 | S-PCBHMS02 | ng/g DW | |
| PCB 189 | S-PCBHMS02 | ng/g DW | |
| PCB 77 | S-PCBHMS02 | ng/g DW | |
| PCB 81 | S-PCBHMS02 | ng/g DW | |
| TEQ (dl-PCB) - lower | S-PCBHMS02 | ng/g DW | |
| TEQ (dl-PCB) - upper | S-PCBHMS02 | ng/g DW | |

| | | | |
|---|-------------|----------|------|
| PCB indicators HRMS | | | |
| PCB 101 | S-PCBHMS04 | ng/g DW | |
| PCB 118 | S-PCBHMS04 | ng/g DW | |
| PCB 138 | S-PCBHMS04 | ng/g DW | |
| PCB 153 | S-PCBHMS04 | ng/g DW | |
| PCB 180 | S-PCBHMS04 | ng/g DW | |
| PCB 28 | S-PCBHMS04 | ng/g DW | |
| PCB 52 | S-PCBHMS04 | ng/g DW | |
| Total Polychlorinated biphenyls - 7 congeners - lower | S-PCBHMS04 | ng/g DW | |
| Total Polychlorinated biphenyls - 7 congeners - upper | S-PCBHMS04 | ng/g DW | |
| PCDDs and PCDFs (Dioxins and Furans) | | | |
| 1234678-HpCDD | S-DFHMS03 | ng/g DW | |
| 1234678-HpCDF | S-DFHMS03 | ng/g DW | |
| 123478-HxCDD | S-DFHMS03 | ng/g DW | |
| 123478-HxCDF | S-DFHMS03 | ng/g DW | |
| 1234789-HpCDF | S-DFHMS03 | ng/g DW | |
| 123678-HxCDD | S-DFHMS03 | ng/g DW | |
| 123678-HxCDF | S-DFHMS03 | ng/g DW | |
| 12378-PeCDD | S-DFHMS03 | ng/g DW | |
| 12378-PeCDF | S-DFHMS03 | ng/g DW | |
| 123789-HxCDD | S-DFHMS03 | ng/g DW | |
| 123789-HxCDF | S-DFHMS03 | ng/g DW | |
| 234678-HxCDF | S-DFHMS03 | ng/g DW | |
| 23478-PeCDF | S-DFHMS03 | ng/g DW | |
| 2378-TCDD | S-DFHMS03 | ng/g DW | |
| 2378-TCDF | S-DFHMS03 | ng/g DW | |
| OCDD | S-DFHMS03 | ng/g DW | |
| OCDF | S-DFHMS03 | ng/g DW | |
| TEQ-Lowerbound | S-DFHMS03 | ng/g DW | |
| TEQ-Upperbound | S-DFHMS03 | ng/g DW | |
| | | | |
| Petroleum Hydrocarbons | | | |
| C12 - C35 Fraction (sum) | S-TPHFID04 | mg/kg DW | 13 |
| C6 - C12 Fraction (sum) | S-TPHFID04 | mg/kg DW | 5.0 |
| Physical Parameters | | | |
| Dry matter @ 105°C | S-DRY-GRCI | % | 0.10 |
| pH (H ₂ O) | S-PHH2O-ELE | | 1.0 |
| Polycyclic Aromatics Hydrocarbons (PAHs) | | | |
| Acenaphthene | S-PAHHMS02 | mg/kg DW | |
| Acenaphthylene | S-PAHHMS02 | mg/kg DW | |
| Anthracene | S-PAHHMS02 | mg/kg DW | |
| Benz(a)anthracene | S-PAHHMS02 | mg/kg DW | |
| Benzo(a)pyrene | S-PAHHMS02 | mg/kg DW | |
| Benzo(b)fluoranthene | S-PAHHMS02 | mg/kg DW | |
| Benzo(g,h,i)perylene | S-PAHHMS02 | mg/kg DW | |
| Benzo(k)fluoranthene | S-PAHHMS02 | mg/kg DW | |
| Chrysene | S-PAHHMS02 | mg/kg DW | |
| Dibenzo(a,h)anthracene | S-PAHHMS02 | mg/kg DW | |
| Fluoranthene | S-PAHHMS02 | mg/kg DW | |
| Fluorene | S-PAHHMS02 | mg/kg DW | |
| Indeno(1,2,3-cd)pyrene | S-PAHHMS02 | mg/kg DW | |
| Naphthalene | S-PAHHMS02 | mg/kg DW | |
| Phenanthrene | S-PAHHMS02 | mg/kg DW | |
| Pyrene | S-PAHHMS02 | mg/kg DW | |
| Sum of PAH - Lowerbound | S-PAHHMS02 | mg/kg DW | |

| | | | |
|-------------------------------------|------------|----------|-------|
| Sum of PAH - Upperbound | S-PAHHMS02 | mg/kg DW | |
| Total Metals / Major Cations | | | |
| Antimony | I-METMSDG2 | mg/kg DW | 0.10 |
| Arsenic | I-METMSDG1 | mg/kg DW | 0.50 |
| Cadmium | I-METMSDG1 | mg/kg DW | 0.10 |
| Chromium | I-METMSDG2 | mg/kg DW | 0.50 |
| Chromium VI | S-CR6-IC | mg/kg DW | 2 |
| Cobalt | I-METMSDG2 | mg/kg DW | 0.10 |
| Copper | I-METMSDG1 | mg/kg DW | 0.20 |
| Lead | I-METMSDG1 | mg/kg DW | 0.10 |
| Manganese | I-METMSDG2 | mg/kg DW | 0.20 |
| Mercury | I-HG-AMADG | mg/kg DW | 0.050 |
| Nickel | I-METMSDG2 | mg/kg DW | 0.50 |
| Selenium | I-METMSDG2 | mg/kg DW | 0.50 |
| Thallium | I-METMSDG3 | mg/kg DW | 0.10 |
| Tin | I-METMSDG2 | mg/kg DW | 0.50 |
| Vanadium | I-METMSDG2 | mg/kg DW | 0.50 |
| Zinc | I-METMSDG2 | mg/kg DW | 0.50 |

ALS GLOBAL CODE REFERENCE & STANDARD METHODOLOGIES

- S-DRY-GRCI CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
- S-PPHOM.07 CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
- S-PPHOM0.3 CZ_SOP_D06_07_P01 Preparation of solid samples for analysis (crushing, milling and pulverizing).
- S-PPHOM10 CSN EN 12457-4 Sieving and crushing of sample on the grain size < 10 mm.
- S-PPL24CE CSN EN 12457-4 (CZ_SOP_D06_07_P04) Characterisation of waste – Leaching – Compliance test for leaching of granular waste materials and sludge – Part 4: One stage batch test at a liquid to solid ratio of 10 L/kg for materials with particle size below 10 mm (without or with size reduction). Liquid to Solid ratio was 10:1.
- S-SMVGMS01 CZ_SOP_D06_03_161 (US EPA 8270, CSN EN 15527, ISO 18287, samples preparation according to CZ_SOP_D06_03_P01 chap. 9.2, 9.3, 9.4.2) Determination of semi volatile organic compounds by gas chromatography method with MS or MS/MS detection and calculation of semi volatile organic compounds sums from measured values
- S-TOC1-IR CZ_SOP_D06_07_121.A (CSN ISO 10694, CSN EN 13137:2002) Determination of total carbon (TC), total organic carbon (TOC), total sulfur and hydrogen by combustion method using IR, determination of total nitrogen by combustion method using TCD and determination of oxygen by calculation and total inorganic carbon (TIC) and carbonates by calculation from measured values.

- S-TPHFID01 CZ_SOP_D06_03_150 (CSN EN 14039, CSN EN ISO 16703, CSN P CEN ISO 16558-2, US EPA 8015, US EPA 3550, TNRCC Method 1006) Determination of extractable compounds in the range of hydrocarbons C10 – C40, their fractions calculated from the measured values by gas chromatography method with FID detection
- S-VOCFID1 CZ_SOP_D06_03_156 except chap. 11.1 a 11.2 (US EPA 8260, US EPA 8015, CSN EN ISO 22155, CSN EN ISO 15009, CSN EN ISO 16558-1, RBCA Petroleum Hydrocarbon Methods) Determination of volatile organic compounds by gas chromatography method with detection FID and ECD and calculation of volatile organic compounds sums from measured values
- W-CL-IC CZ_SOP_D06_02_068 (CSN EN ISO 10304-1, CSN EN 16192) Determination of dissolved fluoride, chloride, nitrite, bromide, nitrate and sulphate by ion liquid chromatography and determination of nitrite nitrogen and nitrate nitrogen and sulfate sulfur by calculation from measured values including the calculation of total mineralization.
- W-DOC-IR CZ_SOP_D06_02_056 (CSN EN 1484, CSN EN 16192, SM 5310) Determination of total organic carbon (TOC), dissolved organic carbon (DOC), total inorganic carbon (TIC) and total carbon (TC) by IR detection.
- W-F-IC CZ_SOP_D06_02_068 (CSN EN ISO 10304-1, CSN EN 16192) Determination of dissolved fluoride, chloride, nitrite, bromide, nitrate and sulphate by ion liquid chromatography and determination of nitrite nitrogen and nitrate nitrogen and sulfate sulfur by calculation from measured values including the calculation of total mineralization.
- W-HG-AFSFX CZ_SOP_D06_02_096 (US EPA 245.7, CSN EN ISO 17852, CSN EN 16192, samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2.) – Determination of Mercury by Fluorescence Spectrometry. Sample was fixed by nitric acid addition prior to analysis.
- W-METMSFX1 CZ_SOP_D06_02_002 (US EPA 200.8, CSN EN ISO 17294-2, US EPA 6020A, CSN EN 16192, CSN 75 7358, samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1, 10.2) – Determination of elements by mass spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was fixed by nitric acid addition prior to analysis.
- W-METMSFX2 CZ_SOP_D06_02_002 (US EPA 200.8, CSN EN ISO 17294-2, US EPA 6020A, CSN EN 16192, CSN 75 7358, samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1, 10.2) – Determination of elements by mass spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was fixed by nitric acid addition prior to analysis.
- W-PHI-CFA CZ_SOP_D06_07_066 (CSN EN ISO 14402, CSN EN 16192, SKALAR company)

methodology) Determination of phenols by continuous flow analysis (CFA) method spectrophotometrically.

W-PMETFX Addition of 5 ml HNO₃ / 1 L sample

W-SO₄-IC CZ_SOP_D06_02_068 (CSN EN ISO 10304-1, CSN EN 16192) Determination of dissolved fluoride, chloride, nitrite, bromide, nitrate and sulphate by ion liquid chromatography and determination of nitrite nitrogen and nitrate nitrogen and sulfate sulfur by calculation from measured values including the calculation of total mineralization.

W-TDS-GR CZ_SOP_D06_02_071 (CSN 757346, CSN 757347, CSN EN 16192, CSN EN 15216) Determination of dissolved solids (RL) and dissolved solids annealed (RAS) using glass fibre filters by gravimetry and determination of loss of ignition of dissolved solids (RL550) by calculation from measured values (glass microfibre filter of porosity 1,5 µm – Environmental Express).

DR GEORGE PELOW

31 October 2020

ISO 17025 Accreditation Certificate of ALS Global Laboratory.



3 August 2020

Groundwater Guidance Document for Conceptual Site Model (CSM) Metalco Ltd. , Luqa

1.0 Introduction

This report provides guidance/information to address the Environment and Resources Agency's (ERA's) recent request to provide further details on the potential hydrological impact of the activities of a Waste Recycling Plant operated by Metalco Ltd., as part of the Land and Groundwater Investigation carried out for the same development (dated 9th May 2020).

2.0 Hydrological Setting

The hydrology of the area within and around the site is rather straightforward. The site overlies the Mean Sea Level Aquifer (MSLA) of Malta, which is located at sea level, some 60m below the site. The underlying geology is (rather compact) Globigerina Limestone, with little fissuring which means that any potential contamination that is or was present on the ground surface within the waste recycling facility would seep slowly - and probably vertically - over a number of years (potentially decades) and gradually make its way to the sea at the Grand Harbour at Marsa as subsurface flow. Of course, on its way to the sea, there will be dilution of any contamination that leached from the site.

There are no springs in the area.

The topography of the area around the site indicates that any (potentially contaminated) stormwater generated within the site would flow in a north-east direction towards the Grand Harbour at Marsa.

A disused quarry lying on the eastern boundary of the site intercepts part of surface water flowing from the site, and acts as a point of recharge to the aquifer.

3.0 Sensitive receptors

The waste recycling facility lies around 375m outside the Ground Water Protection Zone (GWPZ) – Figure 1 and Figure 2 - and moreover it lies downstream of the GWPZ. This means that the Water Services Corporation network (and therefore the public water supply) is not a sensitive receptor.

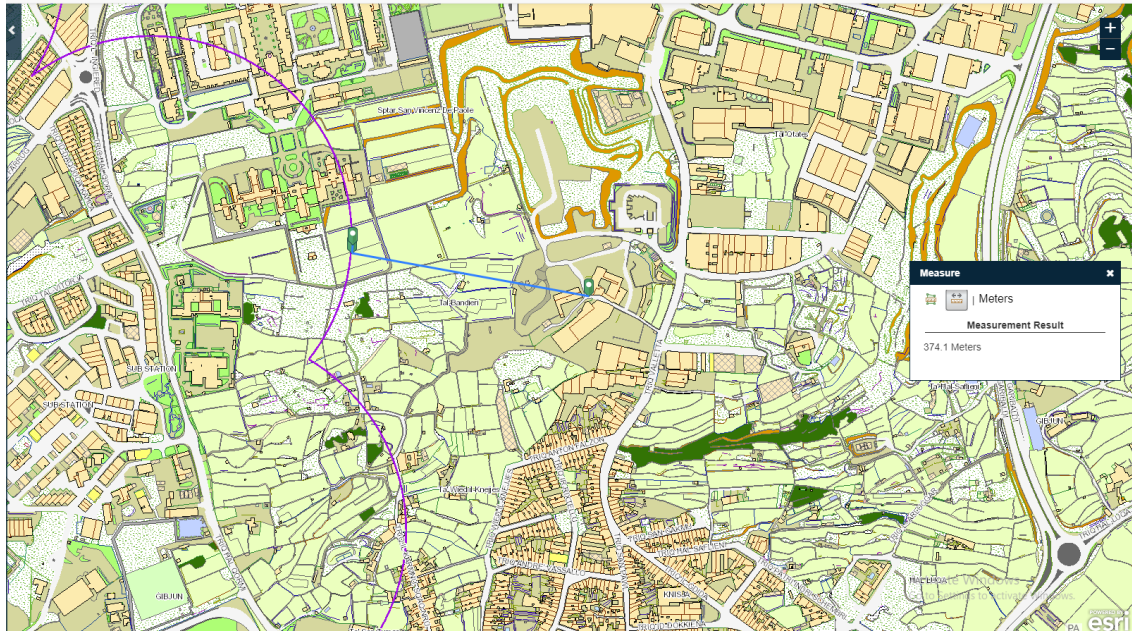


Figure 1 – Distance of site from the Ground Water Protection Zone (GWPZ)

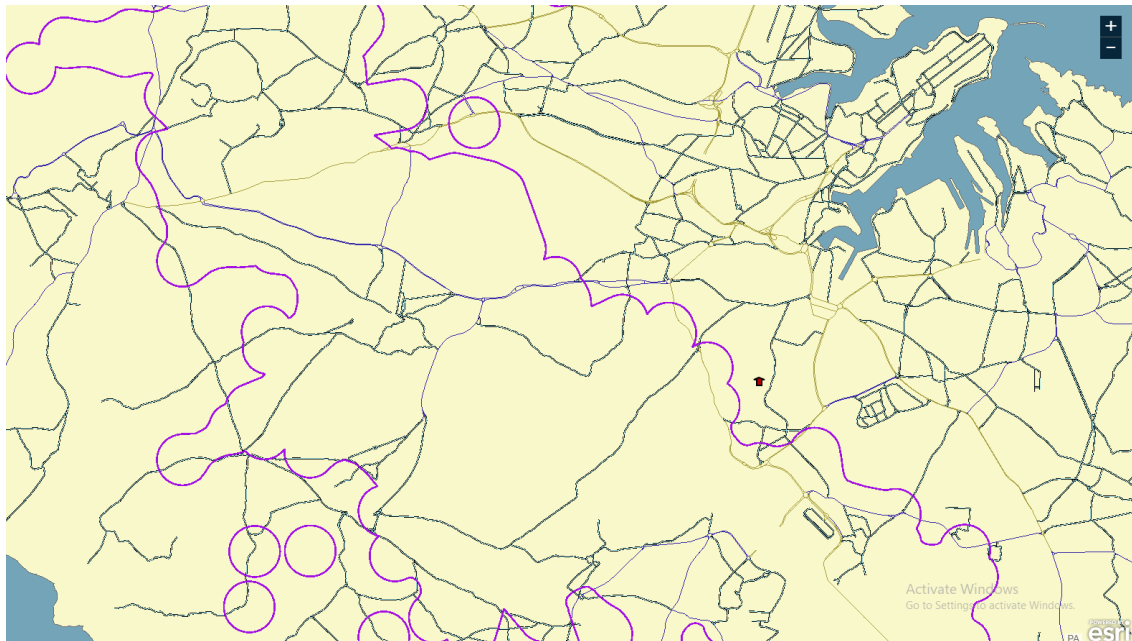


Figure 2 – The site (marked with an arrow) lying outside the Ground Water Protection Zone (GWPZ)

After assessing the nature of the activities around the site it is the opinion of the undersigned that there are few sensitive receptors, and are limited to:

- small scale agricultural activity downstream of the site which may be pumping groundwater from a private (registered or unregistered) borehole/s;
- the Andrews Feeds factory which may be using groundwater for the production of animal feed, located some 300m downstream to the north-east of the site (Figure 3)

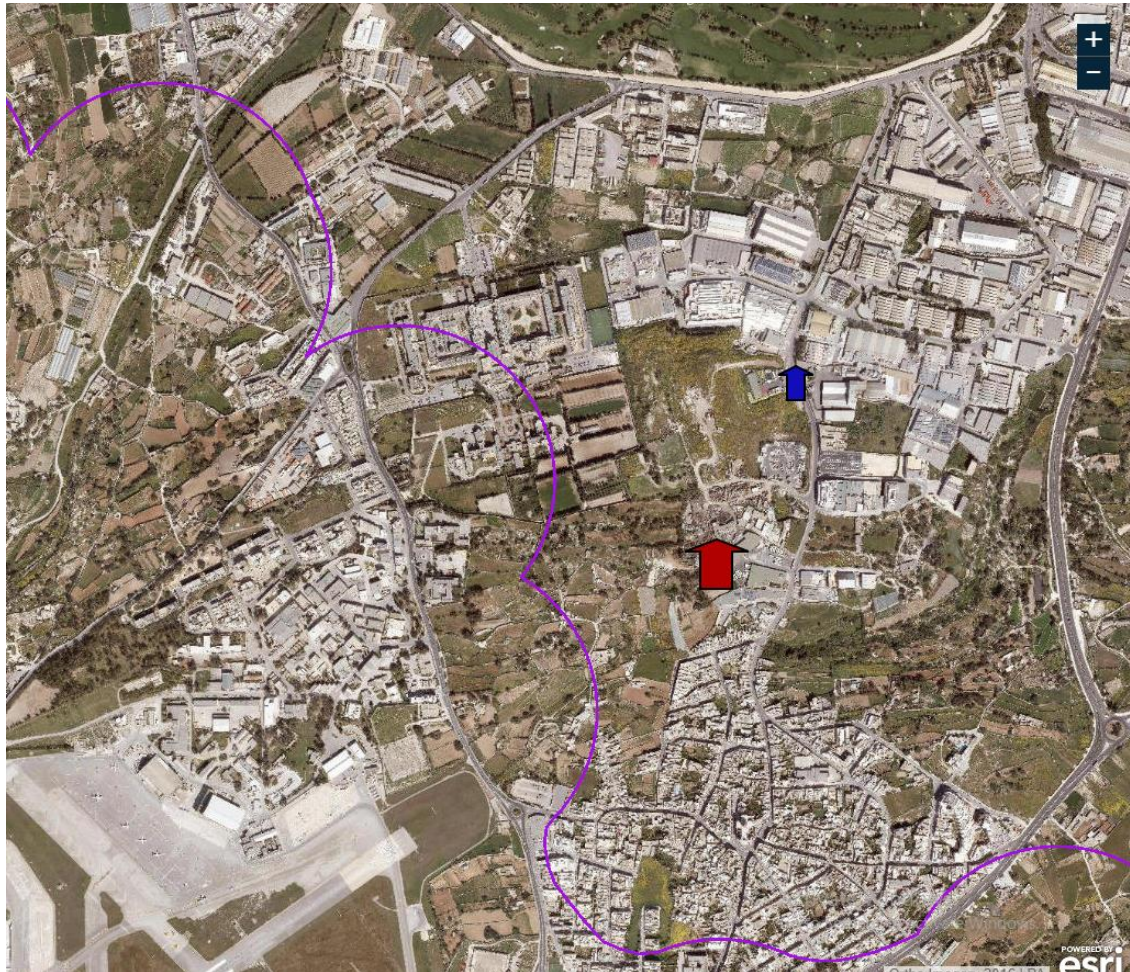


Figure 3 – The location of the Andrews Feeds factory (narked with a blue arrow) in relation to the Metalco site (marked with a red arrow)

4.0 Recommendations

It is recommended that the degree of groundwater contamination, if any, be established by:

1. obtaining a sample from to the WSC Luqa Dump BH (which lies adjacent to site) which however seems to have been abandoned since a number of years and/or;
2. collecting a sample from a registered borehole within the Metalco site (which is not in use but which can be reactivated for the purpose of collecting a sample); or
3. collecting a sample from a private borehole lying adjacent/downstream of the site

and testing the sample/s for the list of heavy metals processed at the site, past or present

Moreover, it is recommended that any further hydrological studies:

1. establish whether the Andrews Feeds factory uses groundwater for the production of animal feed
2. whether the small scale agricultural cultivation uses groundwater for irrigation

A handwritten signature in black ink, consisting of a horizontal line with a vertical stroke and a loop extending to the right.

Ing. Marco Cremona

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