

October 2023

# **Application for Variation of IPPC Permit**

DDE Attard Ltd, Hal Luqa

## List of Conents

<b>1. Introduction .....</b>	<b>4</b>
Structure of the IPPC application.....	4
<b>2. The Scheme .....</b>	<b>6</b>
C1.2 Non-technical description .....	7
C1.3 The proposed variations .....	8
<b>3. Techniques .....</b>	<b>9</b>
C2.2 Proposed activities .....	9
C2.5 Maintenance .....	17
C2.6 Energy.....	17
C2.8 Risk Assessment.....	18
C2.9 Training.....	27
<b>4. Emissions .....</b>	<b>28</b>
C3.1 Waste .....	28
C3.9 Noise .....	30
C3.10 Monitoring .....	31
<b>5. Impact on the Environment .....</b>	<b>32</b>
C4.1 Environmental Effects .....	32
C4.2 Effects on Other Sites .....	32
<b>6. Annexes.....</b>	<b>35</b>
Annex 1 – Container and Tools for Manual Battery Removal Specifications. .....	35
Annex 2 – BAT Assessment.....	38
Annex 3 – Risk Assessment Methodology .....	81
Annex 4 – Fire Prevention and Response Plan .....	84
Annex 5 – Spill Prevention and Response Plan .....	104
Annex 6 – Engineer Report.....	106
Annex 7 – CPD Communication .....	111

## Figures

Figure 1: Location of Scheme.....	5
Figure 2: Scheme Layout.....	6
Figure 3: ELV depollution and dismantling (Stage 1).....	13
Figure 4: ELV depollution and dismantling (Stage 2).....	14
Figure 5: ELV depollution and dismantling (Stage 3 & 4).....	15
Figure 6: Surrounding land uses.....	33
Figure 7: Assembly point.....	101
Figure 8: Location of firefighting equipment.....	102
Figure 9: Ring main connections to firefighting reservoir.....	103

## Tables

Table 1: Proposed variation to IPPC permit condition.....	8
Table 2: Pollution Pathways Identification and Mitigation Measures.....	20
Table 3: Risk Levels (Current Mitigation).....	25
Table 4: Risk Levels with additional mitigation.....	26
Table 5: Outgoing Waste.....	29
Table 6: Criteria for assessing environmental consequences.....	82
Table 7: Measure of Likelihood.....	83
Table 7: Risk Matrix.....	83

## 1. Introduction

- 1.1 This application for variation of the Integrated Pollution Prevention and Control (IPPC) permit was commissioned by DDE Attard Ltd.
- 1.2 DDE Attard Ltd currently operates a waste management facility at Scrap Lane, Ħal Luqa. Hereafter in the IPPC application, the facility is referred to as 'the Scheme'. DDE Attard Ltd is referred to as 'the Operator'.
- 1.3 The operation of the Scheme is regulated by IPPC permit number IP 0001 / 13\_A\_V2 issued by the Environment and Resources Authority (ERA) in July 2020. The area authorised by the IPPC permit is shown in **Figure 1**.
- 1.4 As described in the original IPPC application, it is planned that the Scheme site will be reorganised to improve current operations, including the installation of impermeable hardstanding throughout the site, as well as a new shed to bring certain activities under cover. The layout of the Scheme once the planned upgrades are implemented is shown in **Figure 2**.
- 1.5 The current IPPC permit (*Condition 2.4.4.1*) currently restricts the acceptance of end-of-life vehicles on-site to those powered by internal combustion engines. The aim of this variation application is to remove this restriction and broaden the permit's scope to include the acceptance of both electric and hybrid end of life vehicles at the facility.

## STRUCTURE OF THE IPPC APPLICATION

The IPPC application is composed of two volumes:

- **Volume 1** comprises the IPPC application forms A and C; and
- **Volume 2** (the current volume) consists of the IPPC application document.

Tuning Fork Advisory Ltd. NOUV, Triq MRO Frank Galea, Zebbug ZBG 9019, Malta  
+356 2145 5009 | +356 2134 5010 | WeAdvise@tfork.com  
Co. Reg. No: C90114 | VAT No: MT 2590-4929

Figure 1: Location of Scheme

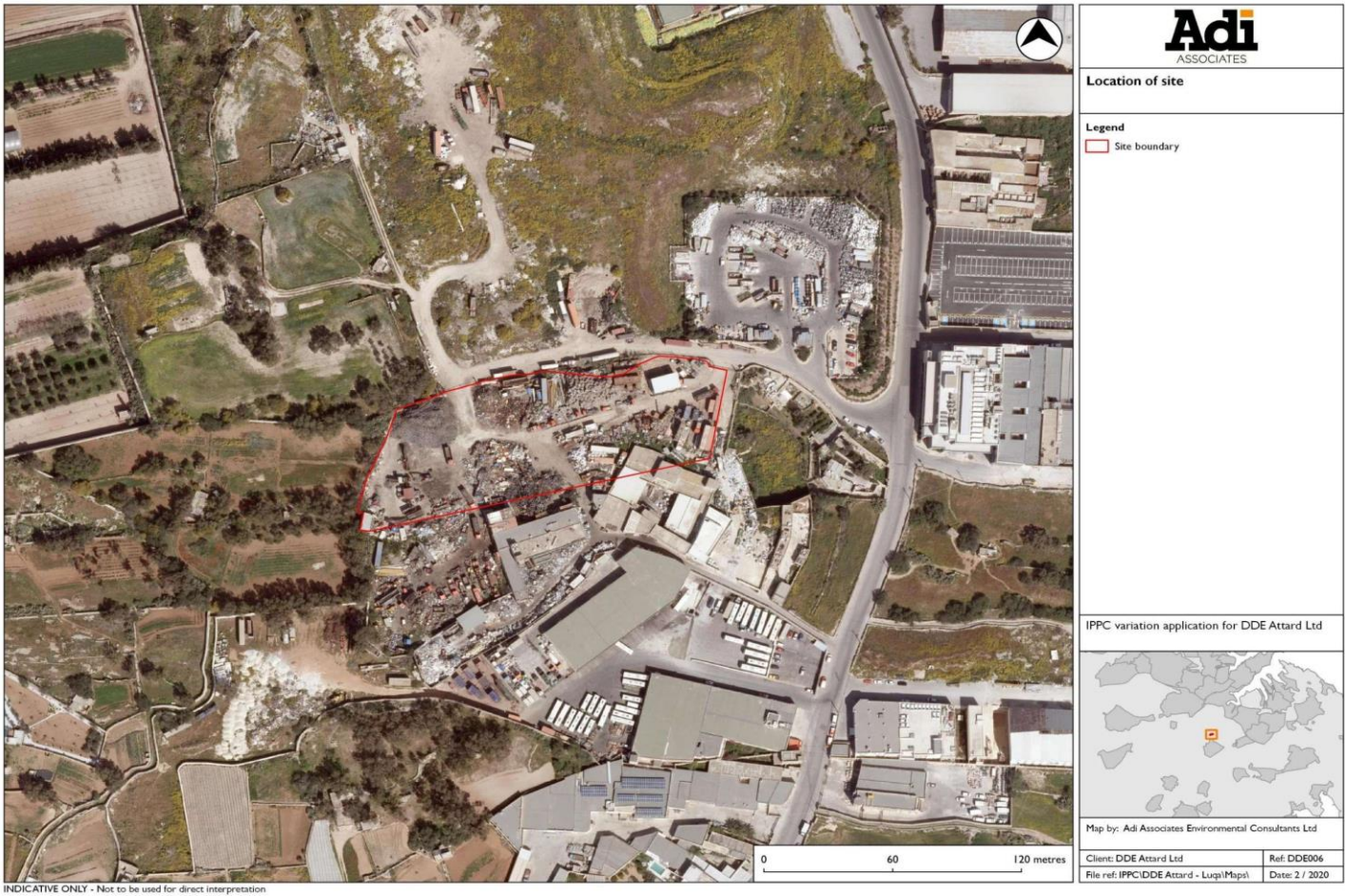
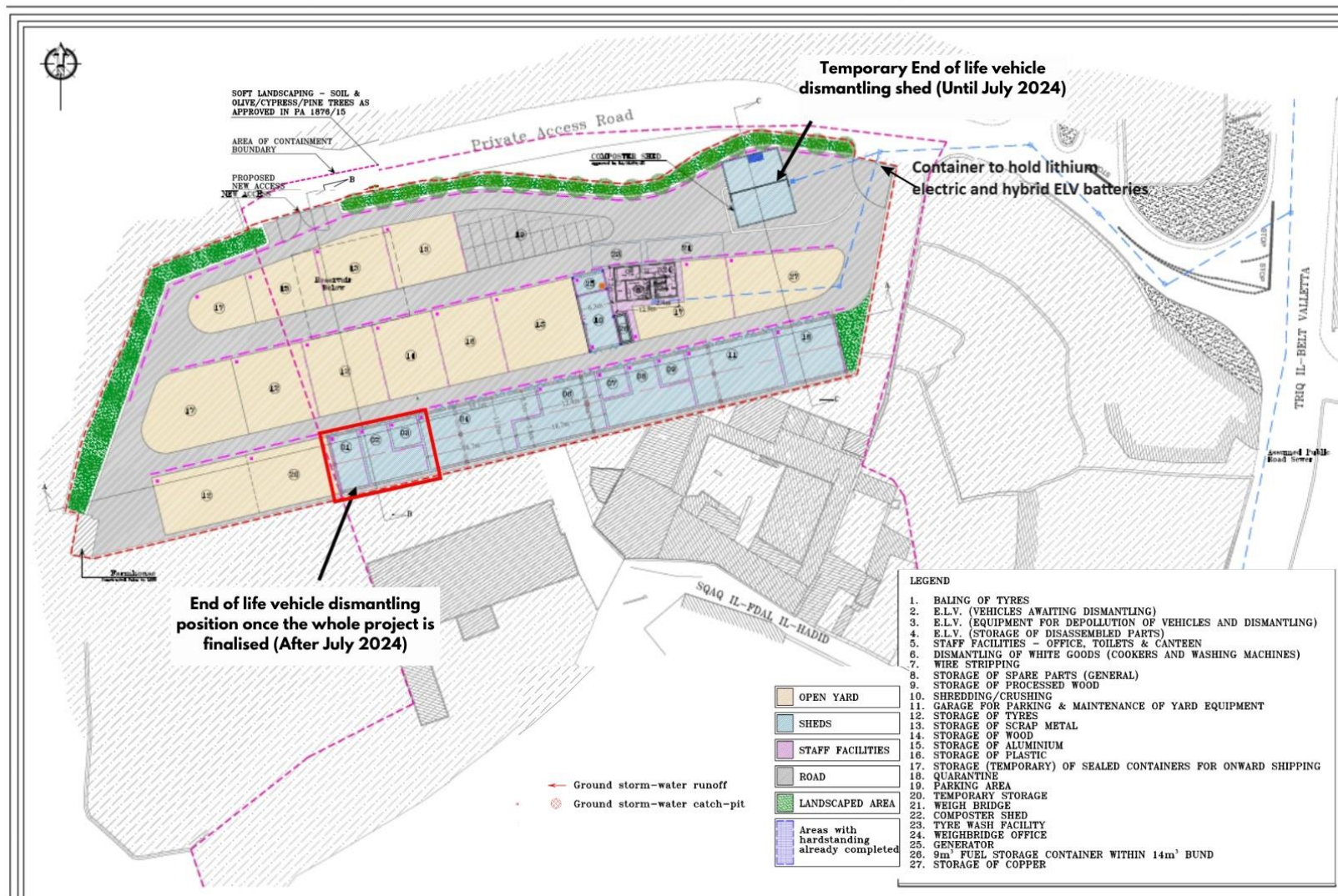




Figure 2: Scheme Layout



## 2. The Scheme

### C.1.2 NON-TECHNICAL DESCRIPTION

ERA's Terms of Reference (ToR) are:

Please provide a non-technical description of the proposed changes.

- 2.1 This application for variation of an Integrated Pollution Prevention and Control (IPPC) permit was commissioned by Mr Daniel Attard on behalf of DDE Attard Ltd, herein referred to as 'the Operator.'
- 2.2 The Operator currently operates a waste management facility at Scrap lane, Hal Luqa, which is regulated by IPPC permit number IP 0001 /13, issued in July 2020, and Variation Notice IP 0001 /13/V2, issued in February 2022.
- 2.3 The Operator is requesting the removal of Condition 2.4.4.1 of the permit number IP/0001 /13/V2 to include the acceptance of both electric and hybrid ELVs.
- 2.4 The depollution and dismantling process for ELVs (End-of-Life Vehicles), (preliminary activities, removal of fluids and hazardous items, removal of airbags and dismantling of components from the depolluted ELV), will largely adhere to the original IPPC application's description. The sole modification pertains to Stage 1, specifically the preliminary activities. In this updated procedure, prior to commencing any treatment, the high-voltage battery of electric and hybrid ELVs will be carefully extracted, put in temporary storage and subsequently disposed of by an authorised facility for recycling process. This addition complements the existing steps in the process.
- 2.5 The facility will include measures to reduce the risk of fire, and firefighting equipment will also be installed, as detailed in the updated Fire Prevention and Response Plan prepared for the facility.

## C1.3 THE PROPOSED VARIATIONS

2.6 ERA's application form requires the following:

Please provide a summary of the variations which you are applying for. This should include:

- a description of the change in operation requiring the variation;
- an indication of the variations to the conditions of the permit that you wish to apply for.

2.7 The proposed variation is removing Condition 2.4.4.1 of the permit number IP/0001/13/V2 to include the acceptance of both electric and hybrid ELVs.

2.8 The electric and hybrid ELVs will be temporarily placed in the temporary dismantling area until April 2024 and then moved to area 2 (refer to Figure 2). In addition, areas 3, and 4 will be used as depollution of vehicles and dismantling area, and storage of disassembled parts area respectively. The batteries of the electric and hybrid ELVs will be stored in the specialized container built for safe storage of lithium batteries which will be placed in a designated area.

The suggested variation to the IPPC permit is listed in **Table 1**.



**Table 1: Proposed variation to IPPC permit condition**

Reference (IP 0001/13/V2)	Condition	Variation requested
Table 1.1.1 (Permitted activities)	<p>Receipt and processing of Internal Combustion Engine (ICE) ELVs and related sorting, management and storage of separated components.</p> <p>Receipt, storage, dismantling and disposal of aircrafts, vessels, and parts thereof subject to a Method Statement approved by the Authority.</p>	<p>Receipt and processing of Internal Combustion Engine (ICE), Electric and Hybrid ELVs and related sorting, management and storage of separated components.</p> <p>Receipt, storage, dismantling and disposal of aircrafts, vessels, and parts thereof subject to a Method Statement approved by the Authority.</p>

## 3. Techniques

### C2.2 PROPOSED ACTIVITIES

2.9 The IPPC application form requires the following:

**C2.2.1** Describe any proposed changes to the installation activities.

**C2.2.2** Describe the proposed techniques and measures to prevent and reduce waste and emissions of substances and heat (including during

*periods of start-up or shut-down, momentary stoppage, leak or malfunction) as a result of your proposals.*

**C2.2.3** *Submit a flow diagram summarising the proposed installation activities and indicating the changes.*

**C2.2.4** *Include a comparison of the proposed changes to the activities with relevant BAT conclusions published by the European Commission, where these have been published.*

**C2.2.5** *Include an outline of the main alternatives considered to the proposed changes to the technology, techniques and measures.*

**C3.11 Emissions & waste summary:** *By means of a mass flow diagram, summarise the emissions and waste described in sections C3.1, C3.2, C3.3, C3.4, C3.6, and C3.8 of this application.*

## C2.2.1 Proposed Changes

- 3.1 As previously stated, the existing IPPC permit only allows for the acceptance of ELVs powered by internal combustion engines, and hence the proposed modification involves the removal of condition 2.4.4.1 of the permit to include the acceptance of electric and hybrid ELVs.
- 3.2 The process of depolluting and dismantling ELVs, which includes preliminary activities, removal of fluids and hazardous items, removal of airbags and dismantling of components from the depolluted ELV, will largely adhere to the original IPPC application's description. The only alteration pertains to Stage 1, specifically the preliminary activities. In this updated procedure, before commencing any treatment, a meticulous extraction of the high-voltage battery will be carried out and subsequently handled by an authorised facility for recycling process.
- 3.3 The Electric and Hybrid ELVs will be temporarily stored in the 'temporary dismantling area until April 2024' and then moved to area 2, as described in the original IPPC application. As discussed above, the high-voltage battery will be carefully extracted prior to treatment and placed in a specialized container built for safe storage of lithium batteries which will be placed in a designated area. This container will be temporary storage for the electric and hybrid batteries before being disposed of by an authorised

facility for recycling process. In addition, areas 3, and 4 will also be used as depollution of vehicles and dismantling area, and storage of disassembled parts area respectively.

- 3.4 To enhance the safe storage of electric and hybrid vehicles and create a controlled environment, the Operator will be dismantling or removing the vehicle's battery upon entry into the facility. This approach ensures separate handling of the battery from the rest of the vehicle. Once dismantled, the vehicle can be treated conventionally. Initially, the batteries are stored in a specialized container built for safe storage of lithium batteries equipped with safety features such as a temperature sensor to trigger the fire extinguishing system, manual activation of the extinguishing system, a gas extinguishing system, and a water connection for flooding if necessary. Proper disposal of water used at permitted facilities to extinguish potential fires is emphasized due to its contamination with harmful chemicals from the batteries. The container for the lithium batteries is sealed and banded, therefore any liquid will only be drained through a dedicated valve (stop-cock). Such liquid will be emptied into IBCs and disposed of at permitted facilities. This meticulous process addresses fire safety concerns and ensures the secure handling of electric and hybrid vehicle batteries within the facility (Refer to engineer report in Annex 6).
- 3.5 The extraction of electric and hybrid batteries from end-of-life vehicles follows a meticulous process designed for worker safety and environmental responsibility. The procedure begins with the careful preparation of tools, including specialized equipment such as a toolbox for HV-vehicles, isolation mats, and barrier posts with chains to create a secure work environment. Upon the vehicle's arrival at the facility, the vehicle is inspected, and connections are switched off prior to being elevated to provide easy access to the battery compartment. A jack is strategically placed under the targeted battery, ensuring stability during removal. Highly trained workers then manually disconnect wiring and other connections, wearing appropriate personal protective equipment and following safety protocols. Isolation mats act as an additional safety measure, minimizing the risk of electric shock by creating a barrier between the worker and the ground. The battery is delicately lifted and maneuvered out of the vehicle, ensuring its integrity. Subsequently, the extracted battery is securely placed in a specialized container designed for safe storage of lithium batteries, guaranteeing safe transportation. These containers are stored in designated areas, adhering to stringent safety regulations.

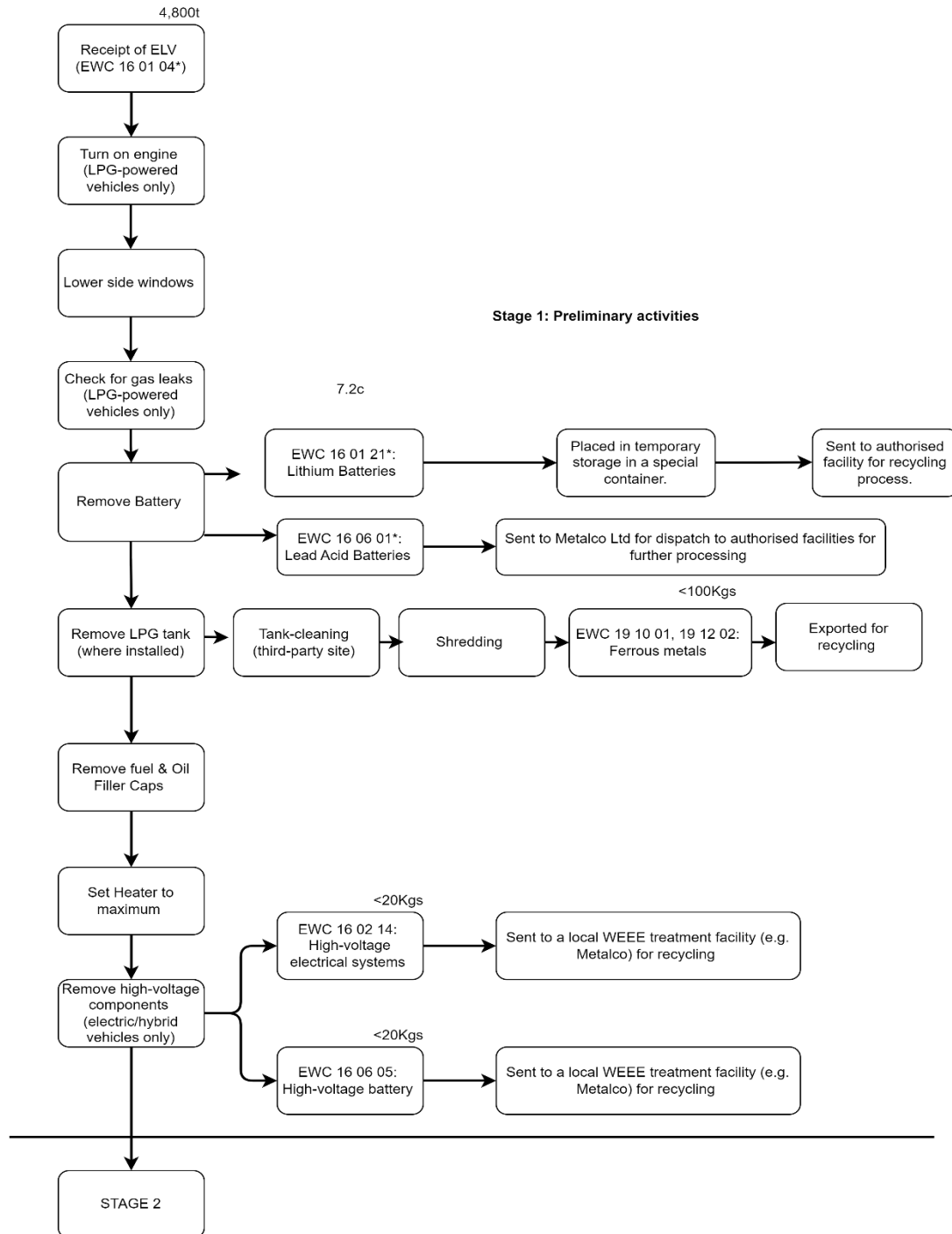
## 2.2.2 Measures to Reduce Waste and Emissions

- 3.6 This variation application will not change one of the schemes purposes in continue maximising the reuse, recycling and recovery of waste materials, from ELV's. As described in section B3.1 of the original IPPC application, over 80% of the incoming waste is planned to be reused, recycled or recovered, and appropriate pre-treatment, in this case ELV depollution will be applied on site when possible. Procedures will also be in place for quarantining unauthorised waste.
- 3.7 Area where ELV depollution and decommissioning will temporary take place on hard standing area designated for this purpose. This surface of this hardstanding area will be laid to fall towards a silt trap and oil-water interceptors before being received in a temporary reservoir. This ensures that emissions from any spills are contained and do not contaminate the underlying bedrock / aquifer or disperse beyond the site. Spill kits will also be available for use by staff. Further details are included in the Spill Prevention and Response Plan in Annex 5 of this variation.
- 3.8 The remaining fire prevention / mitigation measures already communicated as part of the IPPC application are still applicable.

## C2.2.3 / C3.11 Flow Diagram

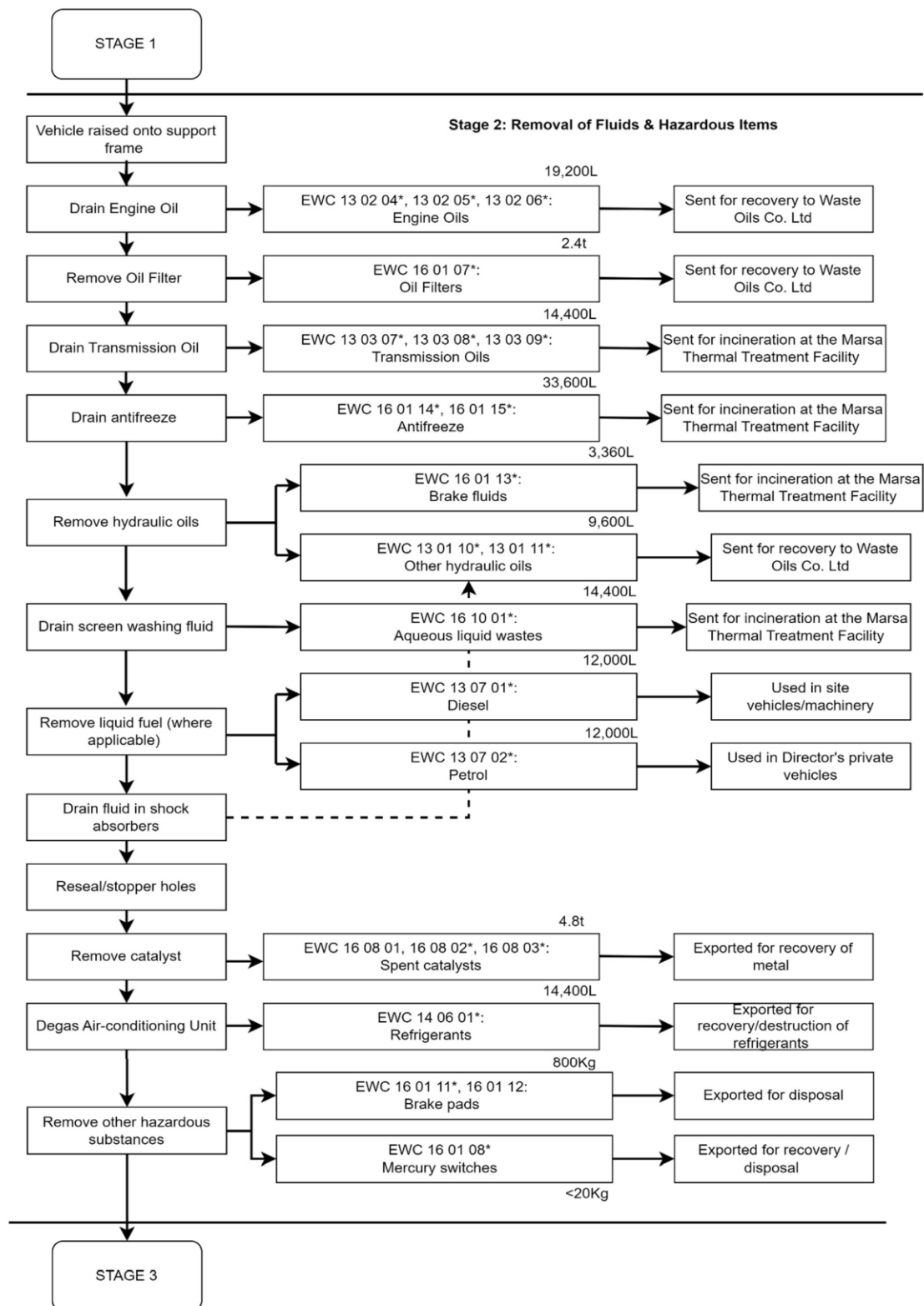
- 3.9 A flow diagram for treatment of for ELVs is included as **Figure 3-5**

**Figure 3: ELV Treatment: Stage 1 – Preliminary Activities**



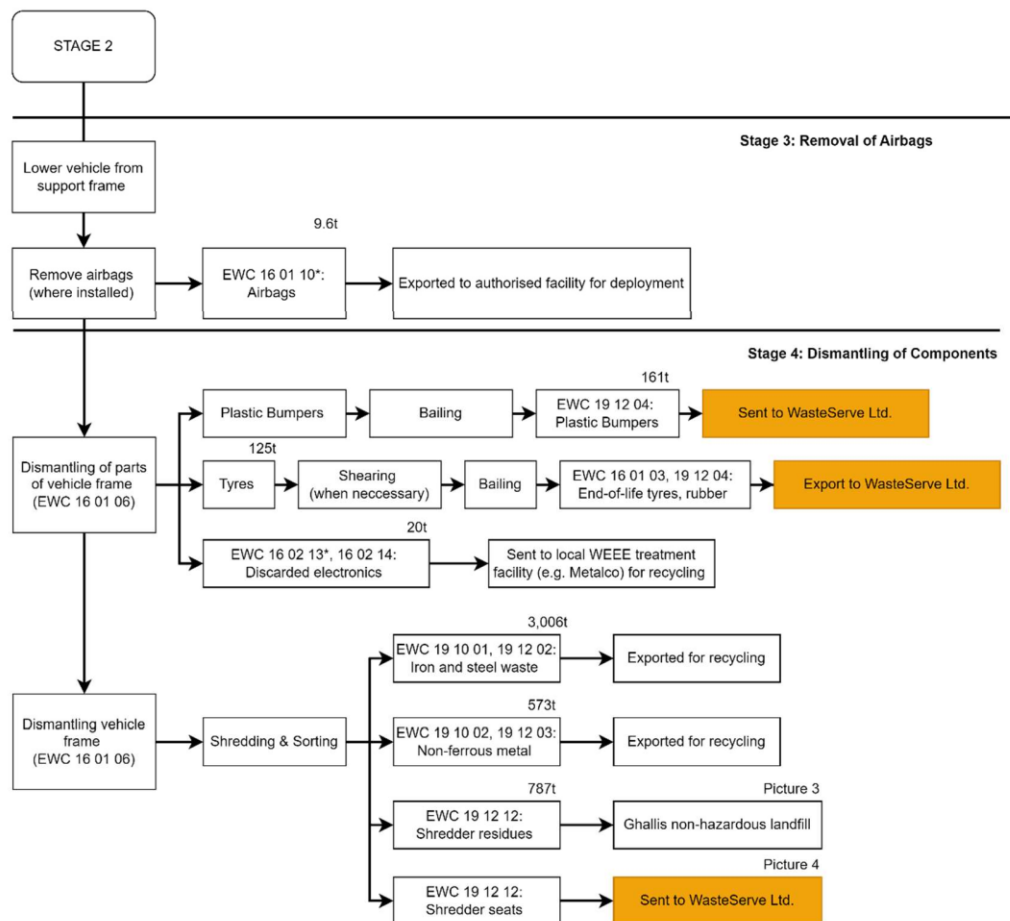


**Figure 4: ELV Treatment: Stage 2 – Removal of Fluids & Hazardous Items**



Tuning Fork Advisory Ltd. NOUV, Triq MRO Frank Galea, Zebbug ZBG 9019, Malta  
+356 2145 5009 | +356 2134 5010 | WeAdvise@tfork.com  
Co. Reg. No: C90114 | VAT No: MT 2590-4929

**Figure 5: ELV Treatment: Stage 3 – Removal of Airbags, and Stage 4 – Dismantling of Components.**



## C2.2.4 BAT Assessment

- 3.10 In addition to the requirement for a BAT assessment arising from the IPPC variation application form, the Improvement Programme in the IPPC permit (item 10) requires the:

*Submission of a Best Available Techniques (BAT) comparison for the BAT conclusions stipulated under Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 establishing BAT conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council in accordance with conditions 4.4 and 2.4.1.2.*

- 3.11 A comparison of the Scheme against the best available techniques (BAT) conclusions for waste treatment, as established by Commission Implementing Decision (EU) 2018/11747 is included in **Annex 2**. **Annex 2** includes an assessment of the entire Scheme operations (as described in the original IPPC application) as well as this variation application.

## C2.2.5 Alternatives

- 3.12 The Operator extensively collaborated with suppliers from Northern Europe, examining a variety of methodologies. After a meticulous evaluation, it was decisively concluded that the optimal strategy involves storing these high-voltage batteries in containers specifically engineered for safe storage of lithium batteries. This means that the batteries will be placed in a more controlled environment, to reduce the risk of fire, spillage and health and safety issues for the workers. As already discussed, the electrical and hybrid vehicle's battery is dismantled/removed upon entry into the facility and placed in this special container. Then the electric and hybrid vehicles will be handled as a conventional ELV

## C2.5 MAINTENANCE

- 3.13 The IPPC variation application form requires the following:

*Describe any changes to the maintenance programme for the installation.*

- 3.14 As mentioned above, a specialized container built for safe storage of lithium batteries will be used to store that high-voltage battery before being disposed of at an authorised facility for recycling process. The container will be included in the Inspection and Maintenance Programme of the Scheme.

## C2.6 ENERGY

- 3.15 ERA's application form requires the following:

- **C2.6.1:** Describe any changes to the annual energy consumption, highlighting the main energy-consuming equipment, and generation by source and end-use (including information on energy generated on site, if applicable).
- **C2.6.2:** Describe any changes to the proposed basic measures for improvement of energy efficiency.

- 3.16 No changes to the annual energy consumption indicated within IPPC application are being foreseen.

- 3.17 No improvements of energy efficiency are being considered. The high-voltage batteries for electric and hybrid vehicles are envisaged to be removed manually upon entry to the facility.

## C2.8 RISK ASSESSMENT

3.18 The IPPC application form requires the following:

*Describe any changes to the documented system used to identify, assess and minimise the environmental risks and hazards of accidents and their consequences.*

*Include any changes to emergency plans in case of fire, actions to be taken in case of failure of abatement equipment and other environmentally relevant incidents (e.g. spillages, gas leakage).*

### Overview of the Changes

- 3.19 As mentioned, the proposed modification includes the acceptance of electric and hybrid ELVs. Currently, the existing IPPC permit restricts acceptance to ELVs powered by internal combustion engines.
- 3.20 The depollution and dismantling process for ELVs, will remain largely consistent with the original IPPC application. The sole change occurs at Stage 1, specifically in the preliminary activities. In this stage, before treatment begins, the high-voltage lithium batteries will be extracted and then handled by an authorised facility for recycling process. The batteries will be safely contained in a designated storage container built specifically for lithium batteries, until recycling.
- 3.21 The container for the lithium batteries is sealed and banded, therefore any liquid will only be drained through a dedicated valve (stop-cock). Such liquid will be emptied into IBCs and disposed of at permitted facilities.

### Risk Assessment Methodology

- 3.22 The Environmental Risk Assessment submitted as part of the original IPPC application had indicated that only ELVs with an internal combustion engine were permissible at the Scheme site.



- 3.23 This part of the Risk Assessment is therefore being updated to assess the effects of the Scheme accepting electric and hybrid ELVs, more specifically addressing short-term temporary storage for lithium batteries, which will be safely enclosed within designated container specifically designed for lithium batteries until safe recycling (included as Annex 3 for reference).
- 3.24 The Fire Prevention and Response Plan for the site has also been updated (Annex 4) to reflect the acceptance of electric and hybrid ELVs and short-term storage of lithium batteries. Since the batteries will be stored safely in a special container built for lithium batteries until recycling, the risk is anticipated to be exceptionally low, with pollution being virtually non-existent.

## Risk Assessment

- 3.25 **Table 2** summarises potential sources of pollution and the respective pathway to the relevant receptors from this change.
- 3.26 Table 3 also include the mitigation measures that will be adopted to mitigate such risks, distinguishing between fixed structural elements incorporated into the upgraded plant design, and procedural mitigation measures. The tables also distinguishes between the measures already in place (current mitigation), and other measures that will be implemented as part of the planned upgrading of the site.

**Table 2: Pollution pathway identification and mitigation measures**

Source	Pathway	Receptor	Mitigation measures		
			Current mitigation	Additional proposed mitigation	
				Structural measures	Procedural measures
Lithium batteries	Air dispersion (Prevailing wind direction)	Container/Land	<ul style="list-style-type: none"> <li>• Fire extinguishers (A fire extinguisher is available and is stored in close proximity to the area;</li> <li>• Record keeping system in place and kept up to date;</li> <li>• Gas cylinders are kept upright and in lockable cages and at least 6 m away from any potential source of ignition;</li> <li>• Night security guard in case of fire.</li> </ul>	<p><u>Quarantined Container:</u></p> <ul style="list-style-type: none"> <li>• Temperature sensor for triggering fire extinguishant system.</li> <li>• Manual triggering of fire extinguishant system.</li> <li>• Gas extinguishing system</li> <li>• Water connection for flooding if necessary.</li> </ul> <p>In an event that water is used to extinguish any fire resulting from a car battery, the resultant water will be properly disposed of since it would be contaminated with harmful chemicals.</p> <p><u>Extinguishing system of the container:</u></p> <ul style="list-style-type: none"> <li>• Aerosol extinguishing generator 1000MT, mounted inside the quarantine tank.</li> <li>• Extinguishing agent quantity of the generator matched to the volume of the quarantine tank.</li> <li>• Triggering of the extinguishing generator by integrated, temperature-sensitive sensor.</li> <li>• Additional manual triggering of the extinguishing generator by pull rope.</li> <li>• Additional 2" water connection with fire department coupling Storz-C, for flooding the</li> <li>• complete tank by external water supply.</li> <li>• 2" water connection at the collection</li> </ul>	<p>General:</p> <ul style="list-style-type: none"> <li>• Operations in accordance with Fire Prevention and Response Plan (Annex 3).</li> </ul> <p>Electric / hybrid vehicles: Adherence to the ELV Depollution and Dismantling procedure (as per section B2.2.1 of the original IPPC application).</p> <p>The dedicated container will be placed in a designated area to reduce the chances of fire spreading into the adjoining combustible materials (See Annex 7).</p>

				tray for targeted draining and disposal of possibly contaminated extinguishing water. <ul style="list-style-type: none"> <li>• Optional fireproof foil roof systems for quarantine storage</li> </ul>	
--	--	--	--	---	--

Source	Pathway	Receptor	Mitigation measures		
			Current mitigation	Additional proposed mitigation	
				Structural measures	Procedural measures
Spill of other liquid hazardous substances/waste (e.g. during storage, transfer, handling, ELV depollution (temporary), leaks from vehicles/machinery, maintenance).	Direct contamination Permeable strata above water table Rainwater runoff.	Land Groundwater	Impermeable hard standing (part of site)	<ul style="list-style-type: none"> <li>Impermeable hardstanding.</li> <li>Gutters leading to silt trap and oil water separators.</li> <li>ELV depollution unit is equipped with container for hazardous materials and bunded.</li> </ul>	<ul style="list-style-type: none"> <li>Spill Prevention and Response Plan; Hazardous waste stored in shed under cover;</li> <li>Containment for liquid hazardous waste (spill trays, prefabricated bunds, and similar systems);</li> <li>Spill kits;</li> <li>Staff training on operational procedures and spill prevention and response.</li> </ul>
Spills of other liquid hazardous substances / waste (e.g. during storage, transfer, handling, ELV depollution (permanent), leaks from vehicles / machinery,	Direct contamination Permeable strata above water table Rainwater runoff	Land Groundwater	Impermeable hard standing (part of site)	<ul style="list-style-type: none"> <li>Impermeable hardstanding.</li> <li>Gutters leading to silt trap and oil water separators.</li> <li>ELV depollution unit is equipped with container for hazardous materials and bunded.</li> </ul>	<ul style="list-style-type: none"> <li>Spill Prevention and Response Plan; Hazardous waste stored in shed under cover;</li> <li>Containment for liquid hazardous waste (spill trays, prefabricated bunds, and similar</li> </ul>



maintenance)					systems); <ul style="list-style-type: none"> <li>• Spill kits.</li> <li>• Staff training on operational procedures and spill prevention and response.</li> </ul>
--------------	--	--	--	--	--

## Identification of Potential Releases

- 3.27 Point 3.178 within the IPPC permit application identifies the potential risks associated with ELV depollution. Considering the lithium batteries will be in a specialized container built for safe storage of lithium batteries, there are no further risks associated with the acceptance of electric and hybrid ELVs.

## Identification of Migration Pathways

- 3.28 No further identification of migration pathways have been identified to those indicated within IPPC application.

## Identification of Potential Receptors

- 3.29 In addition to the potential receptors identified in the original application, the special container that will temporarily contain the electric and hybrid batteries is a new receptor identified as described in Table 2.
- 3.30 The specialised container is equipped with advanced safety features to effectively mitigate fire incidents. It includes a temperature-sensitive sensor and manual triggering options for the fire extinguishing system. The container features a gas extinguishing system and a water connection for flooding if needed, although water disposal is carefully managed due to potential contamination from car battery-related fires. The extinguishing system inside the container comprises a precisely matched aerosol extinguishing generator triggered by sensors and manual controls. There are provisions for external water supply and targeted drainage of extinguishing water. Optional fireproof roof systems enhance safety.

## Risk Evaluation

- 3.31 The various risks to the environment will be assessed using the evaluation criteria described earlier.
- 3.32 The risks associated with both the current scenario and the scenario with the additional proposed mitigation, are evaluated. It should be noted that the Scheme proposes to include all the mitigation measures described.

## Current Mitigation

- 3.33 Table 3 presents risk levels for each source in the current mitigation scenario, but considers the full range of activities proposed in this Application, including new activities.

**Table 3: Risk levels (current mitigation)**

Source	Environmental consequence	Likelihood of consequence	Resultant risk level
Spill / leaks of other liquid hazardous substance / waste (temporary)	Low	Almost certain	Moderate
Spill / leaks of other liquid hazardous substance / waste (permanent)	Low	Almost certain	Moderate
Lithium Batteries	Moderate	Almost certain	Moderate

- 3.34 Other spills and leaks would typically be small-scale and having a low effect on the environment; however, minor spills almost always occur in such site.
- 3.35 Mitigation scenarios for spill/ leaks of other liquid hazardous substance/waste (temporary and permanent) will be the same as those indicated within the original IPPC application).
- 3.36 Risk and pollution related to lithium batteries is moderate if the batteries are not stored in the specialized container built for safe storage of lithium batteries until recycling.

## With Proposed Additional Mitigation

- 3.37 Table 4 presents risk levels for each source in the scenario with the additional planned mitigation measures.

**Table 4: Risk levels with additional mitigation**

Source	Environmental consequence	Likelihood of consequence	Resultant risk level
--------	---------------------------	---------------------------	----------------------

Tuning Fork Advisory Ltd. NOUV, Triq MRO Frank Galea, Zebbug ZBG 9019, Malta  
+356 2145 5009 | +356 2134 5010 | WeAdvise@tfork.com  
Co. Reg. No: C90114 | VAT No: MT 2590-4929

Spill / leaks of other liquid hazardous substance / waste (temporary)	Very Low	Unlikely	Very Low
Spill / leaks of other liquid hazardous substance / waste (permanent)	Very Low	Unlikely	Very Low
Lithium Batteries	Very low	Occasional	Very low

3.38 The mitigated scenario reduces the likelihood of a significant spill occurring during operation to unlikely. The updated Spill Prevention and Response Plan will be in place, together with two types of spill kits (a sawdust spill kit and a commercial spill kit with absorbent pads and booms). Staff will be trained and taught how to control the spill, contain the spill and clean up the spill. After spilling procedural training will also be provided as specified within the mentioned plan.

3.39 The mitigated scenario reduces the likelihood of a significant fire from the lithium batteries as they will be in a specialized container built for safe storage until recycling. The container is meticulously equipped with a robust array of fire safety measures to ensure effective prevention and response in case of fire incidents. These include a temperature-sensitive sensor for automatic triggering of the fire extinguishing system, alongside a manual activation option for added control. The container is outfitted with a gas extinguishing system and a water connection, enabling flooding if necessary, although water used in the process is disposed of properly due to potential contamination. The extinguishing system inside the container features a precisely calibrated aerosol extinguishing generator (1000MT) triggered by both automatic sensors and a manual pull rope. Additionally, there are 2" water connections strategically placed for flooding the tank and draining possibly contaminated extinguishing water. Optional fireproof foil roof systems enhance safety. The specialized container's strategic placement aims to prevent the spread of fire to neighboring combustible materials, ensuring comprehensive fire safety for both personnel and surrounding assets.

## Fire Prevention and Response

- 3.40 As mentioned, an updated Fire Prevention and Response Plan is included in Annex 4.
- 3.41 This Plan describes the fire safety procedures that will be implemented at the Scheme, including the equipment to be installed. Once the Plan is fully implemented, the Scheme will engage a competent person to certify that the relevant fire safety procedures and equipment are in place.
- 3.42 This Plan will also be made available to employees, who will also be trained on fire emergency preparedness and response as described in section B2.9 of the original IPPC application.

## Spill Prevention and Response Plan

- 3.43 As mentioned, an updated Spill Prevention and Response Plan is included in Annex 5.
- 3.44 This Plan describes the spill prevention and response procedures that will be implemented at the Scheme. Once the Plan is fully implemented, the Scheme will engage a competent person to certify that the relevant spill prevention and response procedures and equipment are in place.
- 3.45 This Plan will also be made available to employees, who will also be trained on Spill prevention and response, including dispensing of fuel, storage of hazardous items, use of spill kits as described in section B2.9 of the original IPPC application.

## C2.9 TRAINING

- 3.46 ERA's application form requires the following:  
*Please indicate whether any changes to the staff training programme will be required. Please submit the name of the technically competent person on site who will be responsible for such training.*
- 3.47 The staff training programme prepared for the original IPPC application remains applicable.
- 3.48 Fire emergency preparedness and response training will be prioritized due to take place early in 2024. The following employees

will receive such training: Daniel Attard (Director), Joseph Attard (Director), Christian Cuccardi (Driver/Operator), Vanessa Fenech (Yard Administrator).

- 3.49 In addition to the fire training, spill prevention and response, including dispensing of fuel, storage of hazardous items and the use of spill kits will be given to the staff mentioned in 3.48.
- 3.50 Training in relation to manual handling of lithium batteries will also take place.
- 3.51 Training will be delivered by (i), an external service provider, (ii) the in-house training by the Technically Competent Persons, André Camilleri, or (iii) The Civil Protection Department, which will also be invited to carry out fire drills with staff.

## 4. Emissions

### C3.1 WASTE

4.1 ERA's application form requires the following:

**C3.1.1:** *Characterise (using the European Waste Catalogue code, in accordance with Commission Decision 2014/955/EU) and quantify any changes to each waste stream from the installation.*

**C3.1.2:** *Describe any changes to the proposed measures for waste management, storage and handling. If any are identified, also indicate the storage location of wastes on a site layout plan and give details on:*

- *Maximum storage capacity;*
- *Containment measures (including bunding capacity, where applicable);*
- *Protective measures (including security).*

**C3.1.3:** *Describe how each waste stream identified in C3.1.1 is prepared for re use, recycled, recovered or disposed of. If you propose any disposal, explain why recovery is technically and economically impossible and describe the measures planned to avoid or reduce any impact on the environment*

4.2 The original IPPC application (section B3.1) already included the identification of the waste types generated by the facility. No new waste types are envisaged.

Tuning Fork Advisory Ltd. NOUV, Triq MRO Frank Galea, Zebbug ZBG 9019, Malta  
 +356 2145 5009 | +356 2134 5010 | WeAdvise@tfork.com  
 Co. Reg. No: C90114 | VAT No: MT 2590-4929

- 4.3 The estimated quantities of outgoing waste is being updated to include the lithium batteries as can be seen by Table 5.

**Table 5: Outgoing waste**

Description	EWC code	Estimated annual quantity	Fate
Lithium Batteries	16 01 21*	7.5 t	Sent to an authorised facility for recycling process.

## Waste Acceptance Procedures

- 4.4 As previously described in this application, the method of processing, which encompasses preparation for recycling, will remain the same as described in the original IPPC application.

## Waste Storage Procedures.

- 4.5 The dismantling or removing the vehicle's battery will be done upon entry into the facility. This approach ensures separate handling of the battery from the rest of the vehicle. Once dismantled, the vehicle can be treated conventionally. Damaged batteries demand specific attention due to their susceptibility to spontaneous ignition. The batteries will be stored in a specialized container built for safe storage of lithium batteries, equipped with safety features such as a temperature sensor to trigger the fire extinguishing system, manual activation of the extinguishing system, a gas extinguishing system, and a water connection for flooding if necessary. Proper disposal of water used to extinguish potential fires is emphasized due to its contamination with harmful chemicals from the batteries. This meticulous process addresses fire safety concerns and ensures the secure handling of electric vehicle batteries within the facility. The container for the lithium batteries is sealed and banded, therefore any liquid will only be drained through a dedicated valve (stop-cock). Such liquid will be emptied into IBCs and disposed at permitted facilities.



## C3.9 NOISE

### 4.6 ERA's application form requires the following:

*Describe:*

**C3.9.1:** *The main sources of noise and vibration (including infrequent sources) of the new proposal.*

**C3.9.2:** *The proposed techniques and measures for control of noise*

**C3.9.3:** *The nearest noise sensitive locations and distance away from the site (a site map may be submitted for this purpose)*

**C3.9.4:** *Relevant environmental noise measurement surveys which have been undertaken (monitoring shall be according to the latest revisions of ISO 1996 and the rating of industrial noise affecting residential areas shall be according to BS 4142; monitoring shall be carried out exclusively using type 1 sound level meter).*

- 4.7 The acceptance of electric and hybrid ELVs on the Scheme's site will not change the noise impacts mentioned within the original submitted IPPC application since the batteries will be manually removed and put in a contained container, and the ELV depollution and dismantling process will remain the same, hence it will have a limited noise output.
- 4.8 As submitted as part of the original IPPC application, a Noise Monitoring Survey was undertaken in 2014, in order to establish the noise climate. In this survey, the nearest noise sensitive receptors (NSRs) were identified as being located 220 m away from the Scheme site. The results of the survey point to there being no discernible impact from the Scheme on the ambient noise levels at the identified NSRs. The assessors observed there to be no audible noise from the Scheme during the survey at the perimeter of the site. It is therefore anticipated that there will be no noise emissions as a result of the proposals.
- 4.9 Nevertheless, pursuant to the requirements of IPPC permit number IP 0001/13/V2, the Applicant will commission a noise monitoring Survey. Should a significant impact be identified, a noise management plan will be drawn up and implemented.

## C3.10 MONITORING

### 4.10 ERA's application form requires the following:

Describe the proposed measures for monitoring emissions arising from the proposal, including any environmental monitoring. The following must be specified:

**C3.10.1:** *The location of each proposed monitoring point (plotted on a suitably-labelled block plan of the site.*

**C3.10.2:** *The substances (in each environmental medium) which are proposed to be monitored.*

**C3.10.3:** *The frequency with which monitoring is proposed to take place.*

**C3.10.4:** *The proposed measurement methodology, which should be a standard methodology, such as EN or ISO standard, or equivalent;*

**C3.10.5:** *The proposed procedure for evaluation of the results.*

### 4.11 No further identification of emissions have been identified to those indicated within IPPC application.

## 5. Impact on the Environment

### C4.1 ENVIRONMENTAL EFFECTS

4.12 ERA's application form requires the following:

*Provide an assessment of the potential significant environmental effects (including transboundary effects) of the foreseeable emissions from the proposal*

4.13 No further environmental effects have been identified to those already mentioned in the original IPPC application.

### C4.2 EFFECTS ON OTHER SITES

4.14 ERA's application form requires the following:

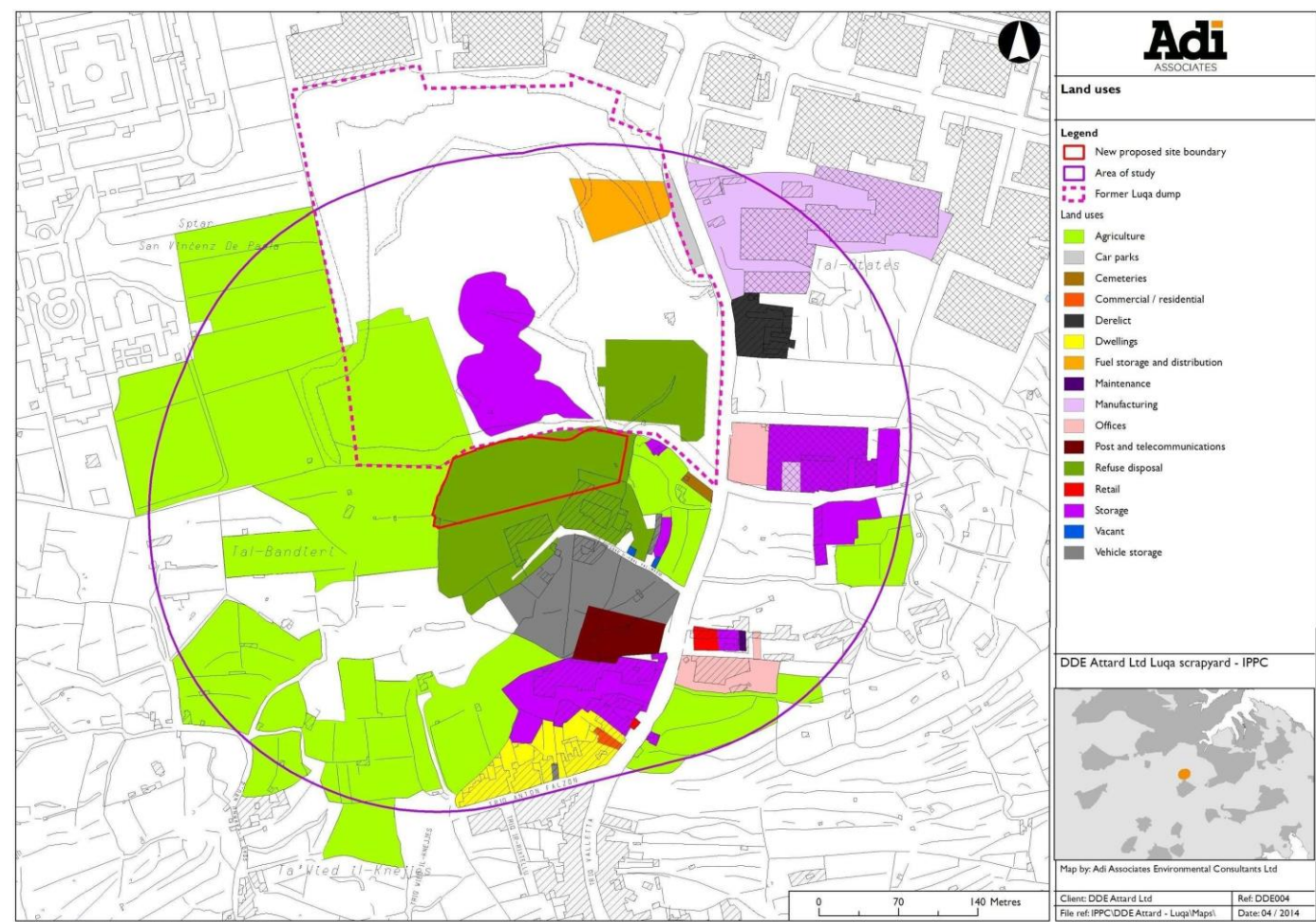
*Provide an assessment of whether the proposal is likely to have a significant effect on another site in Malta and, if it is, provide an assessment of the implications of the installation for that site.*

5.4. Figure 6 shows the land uses surrounding the Scheme site. The uses immediately surrounding the Scheme site are industrial and agricultural.

5.5. The areas immediately adjoining the Scheme site are occupied primarily by small to medium enterprises, including another waste management facility next door (Metalco) and a civic amenity site operated by Wasteserv Malta Ltd next to the Scheme site entrance.

5.6. No effects further to those mentioned in the original IPPC application have been identified.

Figure 6: Surrounding land uses



## **Annex 1 – Container and Tools for Manual Battery Removal Specifications.**



## Equipment for HV- vehicles

### Quarantine container for lithium ion batteries

The safe storage possibility of lithium-ion batteries, by temperature-controlled and automatically triggering aerosol extinguishing generator. Additional flooding possibility with water, in case of thermal runaway.

External dimensions: 2,550 x 1,950 x 1,270 mm  
Usable dimensions: 2,400 x 1,730 x 850 mm  
Through-loading width: 2,200 mm  
Cooling volume: approx. 4 m<sup>3</sup>

### Extinguishing system

- Aerosol extinguishing generator 1000MT, mounted inside the quarantine tank.
- Extinguishing agent quantity of the generator matched to the volume of the quarantine tank.
- Triggering of the extinguishing generator by integrated, temperature-sensitive sensor.
- Additional manual triggering of the extinguishing generator by pull rope.
- Additional 2" water connection with fire department coupling Storz-C, for flooding the complete tank by external water supply.
- 2" water connection at the collection tray for targeted draining and disposal of possibly contaminated extinguishing water.
- Optional fireproof foil roof systems for quarantine storage



## Equipment for HV- vehicles



### Tools for HV-vehicles

- Toolbox for hybrid / E-vehicles 1000 V
- Isolation mats
- Barrier posts and chains



### Manual lift table

For lowering the battery after removal.

Load evenly distributed: 1.000 kg

Construction height: 520 mm

Max. height: 2.000 mm

length: 1.600 mm

wide: 800 mm



## **Annex 2: BATs Assessment**





**COMMISSION IMPLEMENTING DECISION (EU) 2018/11747** establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council

## **BEST AVAILABLE TECHNIQUES (BAT) CONCLUSIONS FOR WASTESCOPE**

These BAT conclusions concern the following activities specified in Annex I to Directive 2010/75/EU, namely:

5.1. Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving one or more of the following activities:

- (a) biological treatment;
- (b) physico-chemical treatment;
- (c) blending or mixing prior to submission to any of the other activities listed in points 5.1 and 5.2 of Annex I to Directive 2010/75/EU;
- (d) repackaging prior to submission to any of the other activities listed in points 5.1 and 5.2 of Annex I to Directive 2010/75/EU;
- (e) solvent reclamation/regeneration;
- (f) recycling/reclamation of inorganic materials other than metals or metal compounds;
- (g) regeneration of acids or bases;
- (h) recovery of components used for pollution abatement;
- (i) recovery of components from catalysts;
- (j) oil re-refining or other reuses of oil;

5.3.(a) Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving one or more of the following activities, and excluding activities covered by Council Directive 91/271/EEC <sup>(1)</sup>:

- (i) biological treatment;
- (ii) physico-chemical treatment;
- (iii) pre-treatment of waste for incineration or co-incineration;
- (iv) treatment of ashes;
- (v) treatment in shredders of metal waste, including waste electrical and electronic equipment and end-of-life vehicles and their components.

(b) Recovery, or a mix of recovery and disposal, of non-hazardous waste with a capacity exceeding 75 tonnes per day involving one or more of the following activities, and excluding activities covered by Directive 91/271/EEC:

- (i) biological treatment;
- (ii) pre-treatment of waste for incineration or co-incineration;
- (iii) treatment of ashes;
- (iv) treatment in shredders of metal waste, including waste electrical and electronic equipment and end-of-life vehicles and their components.

When the only waste treatment activity carried out is anaerobic digestion, the capacity threshold for this activity shall be 100 tonnes per day.

---

<sup>1</sup> Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment ([OJ L 135, 30.5.1991, p. 40](#)).

5.5. Temporary storage of hazardous waste not covered under point 5.4 of Annex I to Directive 2010/75/EU pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 of Annex I to Directive 2010/75/EU with a total capacity exceeding 50 tonnes, excluding temporary storage, pending collection, on the site where the waste is generated.

6.11. Independently operated treatment of waste water not covered by Directive 91/271/EEC and discharged by an installation undertaking activities covered under points 5.1, 5.3 or 5.5 as listed above.

Referring to independently operated treatment of waste water not covered by Directive 91/271/EEC above, these BAT conclusions also cover the combined treatment of waste water from different origins if the main pollutant load originates from the activities covered under points 5.1, 5.3 or 5.5 as listed above.

These BAT conclusions do not address the following:

- Surface impoundment.
- Disposal or recycling of animal carcasses or of animal waste covered by the activity description in point 6.5 of Annex I to Directive 2010/75/EU when this is covered by the BAT conclusions on the slaughterhouses and animal by-products industries (SA).
- On-farm processing of manure when this is covered by the BAT conclusions for the intensive rearing of poultry or pigs (IRPP).
- Direct recovery (i.e. without pretreatment) of waste as a substitute for raw materials in installations carrying out activities covered by other BAT conclusions, e.g.:
  - o Direct recovery of lead (e.g. from batteries), zinc or aluminium salts or recovery of the metals from catalysts. This may be covered by the BAT conclusions for the non-ferrous metals industries (NFM).
  - o Processing of paper for recycling. This may be covered by the BAT conclusions for the production of pulp, paper and board (PP).
  - o Use of waste as fuel/raw material in cement kilns. This may be covered by the BAT conclusions for the production of cement, lime and magnesium oxide (CLM).
- Waste (co-)incineration, pyrolysis and gasification. This may be covered by the BAT conclusions for waste incineration (WI) or the BAT conclusions for large combustion plants (LCP).
- Landfill of waste. This is covered by Council Directive 1999/31/EC<sup>2</sup>. In particular, underground permanent and long-term storage ( $\geq$  1 year before disposal,  $\geq$  3 years before recovery) are covered by Directive 1999/31/EC.
- *In situ* remediation of contaminated soil (i.e. unexcavated soil).
- Treatment of slags and bottom ashes. This may be covered by the BAT conclusions for waste incineration (WI) and/or the BAT conclusions for large combustion plants (LCP).
- Smelting of scrap metals and metal-bearing materials. This may be covered by the BAT conclusions for non-ferrous metals industries (NFM), the BAT conclusions for iron and steel production (IS), and/or the BAT conclusions for the smitheries and foundries industry (SF).
- Regeneration of spent acids and alkalis when this is covered by the BAT conclusions for ferrous metals processing.

<sup>2</sup> Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste ([OJ L 182, 16.7.1999, p. 1](#)).

- Combustion of fuels when it does not generate hot gases which come into direct contact with the waste. This may be covered by the BAT conclusions for large combustion plants (LCP) or by Directive (EU) 2015/2193 of the European Parliament and of the Council <sup>(3)</sup>.

Other BAT conclusions and reference documents which could be relevant for the activities covered by these BAT conclusions are the following:

- Economics and cross-media effects (ECM);
- Emissions from storage (EFS);
- Energy efficiency (ENE);
- Monitoring of emissions to air and water from IED installations (ROM);
- Production of cement, lime and magnesium oxide (CLM);
- Common waste water and waste gas treatment/management systems in the chemical sector (CWW);
- Intensive rearing of poultry or pigs (IRPP).

These BAT conclusions apply without prejudice to the relevant provisions of EU legislation, e.g. the waste hierarchy.

---

<sup>3</sup> Directive (EU) 2015/2193 of the European Parliament and of the Council of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium combustion plants ([OJ L 313, 28.11.2015, p. 1](#)).

## DEFINITIONS

For the purposes of these BAT conclusions, the following **definitions** apply:

Term used	Definition
<b>General terms</b>	
<b>Channelled emissions</b>	Emissions of pollutants into the environment through any kind of duct, pipe, stack, etc. This also includes emissions from open-top biofilters.
<b>Continuous measurement</b>	Measurement using an 'automated measuring system' permanently installed on site.
<b>Declaration of cleanliness</b>	Written document provided by the waste producer/holder certifying that the empty waste packaging concerned (e.g. drums, containers) is clean with respect to the acceptance criteria.
<b>Diffuse emissions</b>	Non-channelled emissions (e.g. of dust, organic compounds, odour) which can result from 'area' sources (e.g. tanks) or 'point' sources (e.g. pipe flanges). This also includes emissions from open-air windrow composting.
<b>Direct discharge</b>	Discharge to a receiving water body without further downstream waste water treatment.
<b>Emissions factors</b>	Numbers that can be multiplied by known data such as plant/process data or throughput data to estimate emissions.
<b>Existing plant</b>	A plant that is not a new plant.
<b>Flaring</b>	High-temperature oxidation to burn combustible compounds of waste gases from industrial operations with an open flame. Flaring is primarily used for burning off flammable gas for safety reasons or during non-routine operating conditions.
<b>Fly ashes</b>	Particles from the combustion chamber or formed within the flue-gas stream, that are transported in the flue-gas.
<b>Fugitive emissions</b>	Diffuse emissions from 'point' sources.

<b>Hazardous waste</b>	Hazardous waste as defined in point 2 of Article 3 of Directive 2008/98/EC.
<b>Indirect discharge</b>	Discharge which is not a direct discharge.
<b>Liquid biodegradable waste</b>	Waste of biological origin with a relatively high water content (e.g. fat separator contents, organic sludges, catering waste).
<b>Major plant upgrade</b>	A major change in the design or technology of a plant with major adjustments or replacements of the process and/or abatement technique(s) and associated equipment.
<b>Mechanical biological treatment (MBT)</b>	Treatment of mixed solid waste combining mechanical treatment with biological treatment such as aerobic or anaerobic treatment.
<b>New plant</b>	A plant first permitted at the site of the installation following the publication of these BAT conclusions or a complete replacement of a plant following the publication of these BAT conclusions.
<b>Output</b>	The treated waste exiting the waste treatment plant.
<b>Pasty waste</b>	Sludge which is not free-flowing.
<b>Periodic measurement</b>	Measurement at specified time intervals using manual or automated methods.
<b>Recovery</b>	Recovery as defined in Article 3(15) of Directive 2008/98/EC.
<b>Re-refining</b>	Treatments carried out on waste oil to transform it to base oil.
<b>Regeneration</b>	Treatments and processes mainly designed to make the treated materials (e.g. spent activated carbon or spent solvent) suitable again for a similar use.

<b>Sensitive receptor</b>	Area which needs special protection, such as: — residential areas; — areas where human activities are carried out (e.g. neighbouring workplaces, schools, daycare centres, recreational areas, hospitals or nursing homes).
<b>Surface impoundment</b>	Placement of liquid or sludgy discards into pits, ponds, lagoons, etc.
<b>Treatment of waste with calorific value</b>	Treatment of waste wood, waste oil, waste plastics, waste solvents, etc. to obtain a fuel or to allow a better recovery of its calorific value.
<b>VFCs</b>	Volatile (hydro)fluorocarbons: VOCs consisting of fluorinated (hydro)carbons, in particular chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs).
<b>VHCs</b>	Volatile hydrocarbons: VOCs consisting entirely of hydrogen and carbon (e.g. ethane, propane, iso-butane, cyclopentane).
<b>VOC</b>	Volatile organic compound as defined in Article 3(45) of Directive 2010/75/EU.
<b>Waste holder</b>	Waste holder as defined in Article 3(6) of Directive 2008/98/EC of the European Parliament and of the Council <sup>(4)</sup> .
<b>Waste input</b>	The incoming waste to be treated in the waste treatment plant.
<b>Water-based liquid waste</b>	Waste consisting of aqueous liquids, acids/alkalis or pumpable sludges (e.g. emulsions, waste acids, aqueous marine waste) which is not liquid biodegradable waste.
<b>Pollutants/parameters</b>	
<b>AOX</b>	Adsorbable organically bound halogens, expressed as Cl, include adsorbable organically bound chlorine, bromine and iodine.
<b>Arsenic</b>	Arsenic, expressed as As, includes all inorganic and organic arsenic compounds, dissolved or bound to particles.

<sup>4</sup> Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives ([OJ L 312, 22.11.2008, p. 3](#)).

<b>BOD</b>	Biochemical oxygen demand. Amount of oxygen needed for the biochemical oxidation of organic and/or inorganic matter in five (BOD <sub>5</sub> ) or in seven (BOD <sub>7</sub> ) days.
<b>Cadmium</b>	Cadmium, expressed as Cd, includes all inorganic and organic cadmium compounds, dissolved or bound to particles.
<b>CFCs</b>	Chlorofluorocarbons: VOCs consisting of carbon, chlorine and fluorine.
<b>Chromium</b>	Chromium, expressed as Cr, includes all inorganic and organic chromium compounds, dissolved or bound to particles.
<b>Hexavalent chromium</b>	Hexavalent chromium, expressed as Cr(VI), includes all chromium compounds where the chromium is in the oxidation state +6.
<b>COD</b>	Chemical oxygen demand. Amount of oxygen needed for the total chemical oxidation of the organic matter to carbon dioxide. COD is an indicator for the mass concentration of organic compounds.
<b>Copper</b>	Copper, expressed as Cu, includes all inorganic and organic copper compounds, dissolved or bound to particles.
<b>Cyanide</b>	Free cyanide, expressed as CN <sup>-</sup> .
<b>Dust</b>	Total particulate matter (in air).
<b>HOI</b>	Hydrocarbon oil index. The sum of compounds extractable with a hydrocarbon solvent (including long-chain or branched aliphatic, alicyclic, aromatic or alkyl-substituted aromatic hydrocarbons).
<b>HCl</b>	All inorganic gaseous chlorine compounds, expressed as HCl.
<b>HF</b>	All inorganic gaseous fluorine compounds, expressed as HF.
<b>H<sub>2</sub>S</b>	Hydrogen sulphide. Carbonyl sulphide and mercaptans are not included.
<b>Lead</b>	Lead, expressed as Pb, includes all inorganic and organic lead compounds, dissolved or bound to particles.



<b>Mercury</b>	Mercury, expressed as Hg, includes elementary mercury and all inorganic and organic mercury compounds, gaseous, dissolved or bound to particles.
<b>NH<sub>3</sub></b>	Ammonia.
<b>Nickel</b>	Nickel, expressed as Ni, includes all inorganic and organic nickel compounds, dissolved or bound to particles.
<b>Odour concentration</b>	Number of European Odour Units (ou <sub>E</sub> ) in one cubic metre at standard conditions measured by dynamic olfactometry according to EN 13725.
<b>PCB</b>	Polychlorinated biphenyl.
<b>Dioxin-like PCBs</b>	Polychlorinated biphenyls as listed in Commission Regulation (EC) No 199/2006 <sup>(5)</sup> .
<b>PCDD/F</b>	Polychlorinated dibenzo- <i>p</i> -dioxin/furan(s).
<b>PFOA</b>	Perfluorooctanoic acid.
<b>PFOS</b>	Perfluorooctanesulphonic acid.
<b>Phenol index</b>	The sum of phenolic compounds, expressed as phenol concentration and measured according to EN ISO 14402.
<b>TOC</b>	Total organic carbon, expressed as C (in water), includes all organic compounds.
<b>Total N</b>	Total nitrogen, expressed as N, includes free ammonia and ammonium nitrogen (NH <sub>4</sub> -N), nitrite nitrogen (NO <sub>2</sub> -N), nitrate nitrogen (NO <sub>3</sub> -N) and organically bound nitrogen.
<b>Total P</b>	Total phosphorus, expressed as P, includes all inorganic and organic phosphorus compounds, dissolved or bound to particles

<sup>5</sup> Commission Regulation (EC) No 199/2006 of 3 February 2006 amending Regulation (EC) No 466/2001 setting maximum levels for certain contaminants in foodstuffs as regards dioxins and dioxin-like PCBs ([OJ L 32, 4.2.2006, p. 34](#)).

<b>TSS</b>	Total suspended solids. Mass concentration of all suspended solids (in water), measured via filtration through glass fibre filters and gravimetry.
<b>TVOC</b>	Total volatile organic carbon, expressed as C (in air).
<b>Zinc</b>	Zinc, expressed as Zn, includes all inorganic and organic zinc compounds, dissolved or bound to particles.

**For the purposes of these BAT conclusions, the following acronyms apply:**

<b>Acronym</b>	<b>Definition</b>
<b>EMS</b>	Environmental management system
<b>EoLVs</b>	End-of-life vehicles (as defined in Article 2(2) of Directive 2000/53/EC of the European Parliament and of the Council <a href="#">(6)</a> )
<b>HEPA</b>	High-efficiency particle air (filter)
<b>IBC</b>	Intermediate bulk container
<b>LDAR</b>	Leak detection and repair
<b>LEV</b>	Local exhaust ventilation system
<b>POP</b>	Persistent organic pollutant (as listed in Regulation (EC) No 850/2004 of the European Parliament and of the Council <a href="#">(7)</a> )
<b>WEEE</b>	Waste electrical and electronic equipment (as defined in Article 3(1) of Directive 2012/19/EU of the European Parliament and of the Council <a href="#">(8)</a> )

<sup>6</sup> Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of life vehicles ([OJ L 269, 21.10.2000, p. 34](#)).

<sup>7</sup> Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC ([OJ L 158, 30.4.2004, p. 7](#)).

<sup>8</sup> Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE) ([OJ L 197, 24.7.2012, p. 38](#)).

## General Considerations:

### Best Available Techniques

The techniques listed and described in these BAT conclusions are neither prescriptive nor exhaustive. Other techniques may be used that ensure at least an equivalent level of environmental protection. Unless otherwise stated, the BAT conclusions are generally applicable.

### Emission levels associated with BAT

Unless stated otherwise, emission levels associated with the best available techniques (BAT-AELs) for emissions to air given in these BAT conclusions refer to concentrations (mass of emitted substances per volume of waste gas) under the following standard conditions: dry gas at a temperature of 273,15 K and a pressure of 101,3 kPa, without correction for oxygen content, and expressed in  $\mu\text{g}/\text{Nm}^3$  or  $\text{mg}/\text{Nm}^3$ .

For averaging periods of BAT-AELs for emissions to air, the following definitions apply.

Type of measurement	Averaging period	Definition
Continuous	Daily average	Average over a period of one day based on valid hourly or half-hourly averages.
Periodic	Average over the sampling period	Average value of three consecutive measurements of at least 30 minutes each <sup>9</sup> .

Where continuous measurement is used, the BAT-AELs may be expressed as daily averages.

### Emission levels associated with the best available techniques (BAT-AELs) for emissions to water

---

<sup>9</sup> For any parameter where, due to sampling or analytical limitations, a 30-minute measurement is inappropriate, a more suitable measurement period may be employed (e.g. for the odour concentration). For PCDD/F or dioxin-like PCBs, one sampling period of 6 to 8 hours is used.

Unless stated otherwise, emission levels associated with the best available techniques (BAT-AELs) for emissions to water given in these BAT conclusions refer to concentrations (mass of emitted substances per volume of water), expressed in µg/l or mg/l.

Unless stated otherwise, averaging periods associated with the BAT-AELs refer to either of the following two cases:

- in the case of continuous discharge, daily average values, i.e. 24-hour flow-proportional composite samples;
- in the case of batch discharge, average values over the release duration taken as flow-proportional composite samples, or, provided that the effluent is appropriately mixed and homogeneous, a spot sample taken before discharge.

Time-proportional composite samples can be used provided that sufficient flow stability is demonstrated. All BAT-AELs for emissions to water apply at the point where the emission leaves the installation.

### **Abatement efficiencies**

The calculation of the average abatement efficiency referred to in these BAT conclusions (see Table 6.1) does not include, for COD and TOC, initial treatment steps aiming at separating the bulk organic content from the water-based liquid waste, such as evapo-condensation, emulsion breaking or phase separation.

### **General BAT conclusions**

Kindly cross-reference to the relevant part of the application document for the various aspects below (as may be required) and include further justifications for the responses provided.

Status at Installation for BAT																			
1.1 Environmental management systems																			
<b>BAT 1</b> Is an Environmental Management System (EMS) being implemented as part of the installation process? <b>The EMS is described in section B2.1 of the original IPPC application. There are no proposed changes to the EMS in this IPPC variation.</b>  If yes, does it incorporate the aforementioned features? (Ex: commitment of the management, planning and establishing the necessary procedures in conjunction with investment and financial planning etc.) If certain features are not incorporated in the current EMS kindly indicate a timeframe by when the EMS shall be updated to include all missing features ( <i>as may be applicable to your operations</i> ).																			
	<table border="1"> <thead> <tr> <th>Features</th> <th>Yes/No</th> </tr> </thead> <tbody> <tr> <td>i. Commitment of the management, including senior management</td> <td>Yes</td> </tr> <tr> <td>ii. An environmental policy that includesthe continuous improvement of the installation by the management</td> <td>Yes</td> </tr> <tr> <td>iii. Planning and establishing the necessary procedures, objectives and targets, in conjunction with financialplanning and investment</td> <td>Yes</td> </tr> <tr> <td>iv. Implementation of procedures paying particular attention to :                a) Structure and responsibility                b) Recruitment, training, awarenessand competence                c) Communication                d) Employee involvement                e) Documenation                f) Effective process control                g) Maintenance programmes             </td> <td>Yes</td> </tr> <tr> <td>v. checking performance and taking corrective action, paying particularattention to:                a) monitoring and measurement (see also theReference Report on Monitoring of emissions to Air and Water from IED installations — ROM);                b) Corrective and preventiveaction                c) Maintenance of records                d) independent (where practicable) internal or external auditing in order todetermine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;             </td> <td>               Yes.                 Waste reporting will be audited as required bythe IPPC permit.             </td> </tr> <tr> <td>vi. review of the EMS and its continuing suitability, adequacy and effectiveness by senior management</td> <td>Yes</td> </tr> <tr> <td>vii. following the development of cleaner technologies;</td> <td>Yes</td> </tr> <tr> <td>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;</td> <td>Yes</td> </tr> </tbody> </table>	Features	Yes/No	i. Commitment of the management, including senior management	Yes	ii. An environmental policy that includesthe continuous improvement of the installation by the management	Yes	iii. Planning and establishing the necessary procedures, objectives and targets, in conjunction with financialplanning and investment	Yes	iv. Implementation of procedures paying particular attention to : a) Structure and responsibility b) Recruitment, training, awarenessand competence c) Communication d) Employee involvement e) Documenation f) Effective process control g) Maintenance programmes	Yes	v. checking performance and taking corrective action, paying particularattention to: a) monitoring and measurement (see also theReference Report on Monitoring of emissions to Air and Water from IED installations — ROM); b) Corrective and preventiveaction c) Maintenance of records d) independent (where practicable) internal or external auditing in order todetermine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;	Yes.  Waste reporting will be audited as required bythe IPPC permit.	vi. review of the EMS and its continuing suitability, adequacy and effectiveness by senior management	Yes	vii. following the development of cleaner technologies;	Yes	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;	Yes
Features	Yes/No																		
i. Commitment of the management, including senior management	Yes																		
ii. An environmental policy that includesthe continuous improvement of the installation by the management	Yes																		
iii. Planning and establishing the necessary procedures, objectives and targets, in conjunction with financialplanning and investment	Yes																		
iv. Implementation of procedures paying particular attention to : a) Structure and responsibility b) Recruitment, training, awarenessand competence c) Communication d) Employee involvement e) Documenation f) Effective process control g) Maintenance programmes	Yes																		
v. checking performance and taking corrective action, paying particularattention to: a) monitoring and measurement (see also theReference Report on Monitoring of emissions to Air and Water from IED installations — ROM); b) Corrective and preventiveaction c) Maintenance of records d) independent (where practicable) internal or external auditing in order todetermine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;	Yes.  Waste reporting will be audited as required bythe IPPC permit.																		
vi. review of the EMS and its continuing suitability, adequacy and effectiveness by senior management	Yes																		
vii. following the development of cleaner technologies;	Yes																		
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;	Yes																		

	ix. application of sectoral benchmarking on a regular basis	Will be carried out if required by ERA and if sectoral data is available; otherwise the Scheme will compare its performance with previous years' data.
	x. waste management plan (see BAT 2)	Yes. Details of how incoming waste will be managed are provided in sections B2.2.1 and B3.1 of the original IPPC application and sections C2.2.1 and C3.1 of this variation application.
	xi. BAT is to incorporate the following features in the EMS: a. if applicable, on multi-operator installations/sites, establishment of a convention that sets out the roles, responsibilities and coordination of operating procedures of each plant operator in order to enhance the cooperation between the various operators b. establishment of inventories of waste water and waste gas streams(see BAT 3).	a. Not applicable – not a multi- operator site. b. See response to BAT 3 below.
	xii. residues management plan (see description in Section 6.5)	Yes. Details of how incoming waste will be managed, and how reuse / recycling / recovery of residues generated (or proper disposal) will be ensured are included in section B3.1 of the original IPPC application.
	xiii. accident management plan (see description in Section 6.5)	Yes. An environmental risk assessment, a Fire and Explosion Prevention and Response Plan, and a Spill Prevention and Response Plan have been updated and are included in section C2.8 of this IPPC Variation application.
	xiv. odour management plan (see BAT 12)	Not applicable. Due to the nature and scale of the potentially odour-generating activities, the mitigation measures in place, and the distance from odour sensitive receptors (as described in section B3.7 of the original IPPC application), odour nuisance at sensitive receptors is not expected.
	xv. noise management plan (see BAT 17)	A noise study was undertaken as part of the IPPC application (section B3.9), and no discernible impact on the nearest receptor was identified. The study also concluded that new equipment was unlikely to have a significant impact due to its location, existing noise levels, the distance to receptors, and

		<p>the noise output of other activities in the area.</p> <p>However, as required by the improvement programme item in the IPPC permit, another noise monitoring study will be carried out. Should a significant impact be identified, a noise management plan will be drawn up and implemented.</p>	
--	--	---	--

<p><b>BAT 2</b></p> <p>Which of the following techniques are used to assess environmental performance (kindly providesupporting documentation as evidence that such measures are being implemented):</p> <p><i>Should any of the techniques below not be currently implemented on site, kindly provide a timeframe andproposal for their implementation.</i></p>			
		<b>Technique</b>	<b>Yes/No</b>
	a.	Set up and implement waste characterisation and pre-acceptance procedures	<p>Yes. Information about the nature and origin of waste will be collected from the originating facility prior to acceptance.</p> <p>Additionally, sealed containers containing hazardous waste will be inspected by Scheme staff at the site of generation, before the container is sealed. To minimise environmental risks, such containers will not be opened on site.</p> <p>In relation to the sealed container for lithium-ion batteries, a pre-acceptance procedure (Annex 11 of this variation) is being established to make sure that only lithium-ion batteries are accepted on site.</p>
	b.	Set up and implementwaste acceptance procedures	<p>Yes. Waste is inspected upon receipt to ensure it is as described. The correctness of the EWC code will also be verified upon receipt of the waste. Waste may be refused if unacceptable. Considering the natureof the waste accepted, a visual check of the waste upon receipt will be sufficient to determine whether the waste received matches the waste types that the facility is authorised to receive. Sampling and laboratory analysis are not warranted.</p> <p>Additionally, a quarantine area is planned next to the site entrance. Inthe event of any waste appearing not to fall within the list of authorised waste after the truck has been unloaded, such waste will be placed in the quarantine area and removed from the site to an authorised facility as soon as practicable, typically within a few days.</p>
	c.	Set up and implement a waste tracking system and inventory	<p>Yes. A computer database will be in place (linked to the weighbridge data), which will allow for tracking of incoming and outgoing waste, and can also act as a stock control system.</p> <p>Database system will be in place once all works indicated within this variation are complete.</p>

	d.	Set up and implement an output quality management system	<p>An output QMS allows verification that the characteristics of the waste output are in line with the expectations, which may be product specifications, contaminant removal efficiency rate, etc.</p> <p>It is to be noted that the Scheme will only accept a limited and defined set of wastes for processing, and the treatment method for each type of waste is well-defined. Given the nature of the waste accepted, a visual check of the incoming waste upon receipt, direct observation of WEEE and ELV by site operatives throughout the process, and a visual check of the segregated components prior to their removal from site will be sufficient to determine whether expected output quality is achieved. Additionally, the Operator maintains close relationships with the recipients of the outgoing materials, which ensures that any problems in output quality as perceived by the end user are communicated.</p>	
	e.	Ensure waste segregation	Yes. Different waste types are stored and processed in designated areas, as described in section B3.1 of the original IPPC application and section C3.1 of the variation application.	
	f.	Ensure waste compatibility prior to mixing or blending of waste	Yes. The Scheme will only accept a limited range of wastes and no compatibility issues are foreseen. No mixing / blending of liquid wastes is envisaged. Wastes of the same type will be processed / stored together.	
	g.	Sort incoming solid waste	<p>Yes. Different waste types are stored and processed in designated areas, as described in sections B2.2.1 and B3.1 of the original IPPC application and section C2.2.1 and C3.1 of the variation application.</p> <p>Additionally, the dismantling of ELVs and WEEE includes separation and sorting of different types of solid waste components, and the proposed two-stage shredding and sorting of depolluted ELVs will enable segregation of different types of metals from other components (see section B2.2.1 of the original IPPC application). The electrical cable stripper is also able to separate different components of wires (see section B2.2.1 of the original IPPC application). For electric and hybrid ELVS the battery will be stored in a specialized container until disposal to authorised facility for disposal process.</p>	



**BAT 3**

Which of the following elements are included as part of the inventory relating wastewater? (kindly provide supporting documentation as evidence of the information requested below).

(i) information about the characteristics of the waste to be treated and the waste treatment processes,including:

Features	Yes/No
a) simplified process flow sheets that show the origin of the emissions;	Yes – section B2.2.3 of the original IPPC application and C2.2.3 of the approved variation application IP 001/13/V2.
b) descriptions of process-integrated techniques and waste water/waste gas treatment at source including their performances;	Yes – sections B3.3, B3.6 and B3.7 of the original IPPC application.

(ii) information about the characteristics of the waste water streams, such as:

Features	Yes/No
a) average values and variability of flow, pH, temperature, and conductivity;	Surface runoff water will be resultant within reservoir. Such testing will be undertaken as per information provided in response C3.10 in Volume 3: Response to Reviews and Regulatory Consultation of the approved variation application IP 001/13/V2.
b) average concentration and load values of relevant substances and their variability (e.g. COD/TOC, nitrogen species, phosphorus, metals, priority substances / micropollutants)	
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);	

(iii) Which of the following elements are included as part of the inventory relating waste gas streams?

Features	Yes/No
a) average values and variability of flow and temperature;	Emissions to air are described in section B3.6 of the original IPPC application. An air monitoring programme will be implemented in accordance with the requirements of the IPPC permit, which are tailored to the nature of the emissions.
b) average concentration and load values of relevant substances and their variability (e.g. organic compounds, POPs such as PCBs);	
c) flammability, lower and higher explosive limits, reactivity;	
d) presence of other substance that may affect the waste gas treatment system or plant safety (e.g. oxygen, nitrogen, water vapour, dust)	

# BAT 4

Kindly provide details on how each of the following techniques are being implemented on site.

	Technique	Yes/No
a.	Optimized storage location	Yes
	<p>Waste will be stored in designated storage areas; hazardous waste will be stored under cover, or in sealed storage containers. The entire site will be concreted, and potentially contaminated rainwater reaching the site surface will be collected through surface gutters, and treated in a silt- trap and oil-water interceptors before being received in a temporary 2m3 reservoir (once Phase 2 works are complete) and then in an underground 800 m3 reservoir (once phase 4 works are complete).</p> <p>Process flows are described in section B2.2.1 of the original IPPC application, section C2.2.1 of the approved variation IP/001/13/V2, section C2.2.1 of this variation, and do not include any unnecessary handling of wastes.</p>	
b.	Adequate storage capacity	Yes
	<p>The storage capacity is defined by the dimensions of the various designated areas on site, and will not be exceeded. For certain hazardous substances / waste, the maximum quantity stored was estimated as part of the COMAH Assessment undertaken as part of the original IPPC application (Volume 3). Wastes will be removed as frequently as necessary to ensure the quantities on site remain within the site's capacity.</p> <p>A computer database will be in place (linked to the weighbridge data), which will allow for tracking of incoming and outgoing waste, and can also act as a stock control system.</p> <p>In accordance with the IPPC permit, the maximum residence time of waste is 12 months if pending disposal and 36 months if pending recovery; however, this will typically be much lower.</p>	
c.	Safe storage operation	Yes
	<p>Loading / unloading activities are carried out by equipment / machinery (e.g. grab excavator, forklift tucks) which does not need labelling.</p> <p>Designated areas have been identified for various waste types, as described in the IPPC application. Waste oils, fuels and batteries from end-of-life vehicles will be stored under cover in the shed.</p> <p>Containers will be fit for purpose and stored securely.</p>	
d.	Separate area for storage and handling of packaged hazardous waste	Not applicable
	No packaged hazardous waste (e.g. solvents / laboratory smalls) is envisaged.	

**BAT 5**

**How will handling and transfer procedures be carried out?**

Employees will be trained, as described in section B2.9 of the original IPPC application, section C2.9 of the approved variation application IP001/13/V2 and section C2.9 of this variation application.

Waste handling and transfer activities are typically carried out using the following methods; inputs and outputs of waste from the Scheme are documented:

- Tipping the load from a dump truck by raising the tipper bed (unloading only);
- Using a telehandler;
- Using the grab excavator;
- Using a forklift truck;
- Using a palletiser.

The electric and hybrid high voltage batteries will be removed manually as described in C.2.2.1, Annex 1: The Container and tools for Manual Battery Removal Specifications and Annex 4: the Fire Prevention and Response Plan of this variation.

Spill prevention and response measures are described in section B2.8 of the original IPPC application. No mixing / blending of wastes of different types is envisaged.

**1.2 Monitoring**

**BAT 6**

Which process parameters will be monitored, and at which points?

There are no direct discharges of wastewater to a water body.

As described in section B3.3 of the original IPPC application, there may be occasional discharge of non-hazardous condensate to the sewer; in this case monitoring will be in accordance with WSC and IPPC permit requirements. Such monitoring is tailored to the nature of the emissions. It is noted that effluent discharged to sewer is further treated inthe WSC’s effluent treatment plant.

As described in section B3.5 of the original IPPC application, there may also be overflow of treated water from the underground reservoir. A monitoring programme will be in place for such emissions, and will be tailored to the natureof the potential emissions, as required by the IPPC permit.

Parameters	Yes/No (If yes, at which points?)
Waste water flow	
pH	
Temperature	
Conductivity	
BOD	

Monitoring proposal has been provided in comments to C3.10 in Volume 3: Response to Reviews and Regulatory Consultation, of the approved variation IP/001/13/V2.

**BAT 7**

Kindly include the list of parameters together with the proposed monitoring standard as part of the monitoring proposal submitted in line with Section B3.10 of the application.

*Should the operator, request any deviations from the requirements listed in BAT 7, adequate justification with cross-reference to the applicable application document is to be provided for ERA’s consideration.*

There are no direct discharges of wastewater to a water body.

As described in section B3.3 of the original IPPC application, there may be occasional discharge of non-hazardous condensate to the sewer; in this case monitoring will be in accordance with WSC and IPPC permit requirements. Such monitoring is tailored to the nature of the emissions. The methodology to be used for such monitoring will be as agreed with the WSC. As this would be an occasional discharge, the monitoring frequency will be prior to every discharge.

As described in section B3.5 of the original IPPC application, there may also be overflow of treated water from the underground reservoir. A monitoring programme will be in place for such emissions, as required by the IPPC permit, and will be tailored to the nature of the potential emissions. The methodology to be used for such monitoring will be defined in the monitoring programme to be submitted to ERA. As required by the IPPC permit, monitoring will take place twice a year, once the reservoir is in place.

**BAT 8**

*Should the operator, request any deviations from the requirements listed in BAT 7, adequate justificate with cross-reference to the applicable application document is to be provided for ERA’s consideration.*

Currently there is no channeled emission point corresponding to the shredder (see also the response to BAT 25), however, should a channeled emission point be put in place then a monitoring proposal will also be put forward.

**BAT 9**

Which techniques will be applied to monitor diffuse emissions of organic compounds from solvent regeneration?

Kindly also specify how diffuse emissions shall be monitored using the chosen technique. Kindly include the proposed moniroing technque as part of the monitoring proposal submitted in line with Section B3.10 of the application.

Technique	Yes/No
Measurement	
Emissions factors	
Mass balance	

Not applicable. None of the activities that BAT 9 applies to are proposed at the Scheme

**BAT 10**

Which methods or features will be applied for frequent monitoring of odour emissions?

Kindly also specify how odour emissions shall be monitored using the chosen technique. Kindly include the proposed monitoring technique as part of the monitoring proposal submitted in line with Section B3.10 of the application.

Features/Methods	Yes/No
1) EN standards (e.g. dynamic olfactometry according to EN 13725 to determine the odour concentration or EN 16841-1 or -2 in order to determine odour exposure)	
2) Alternative methods for which no EN standards are available	
3) ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality	

Not applicable. As described in the original IPPC application, due to the nature and scale of the potentially odour- generating activities, the mitigation measures in place, and the distance from odour sensitive receptors (as described in section B3.7 of the original IPPC application), odour nuisance at sensitive receptors is not expected.

Nevertheless, as stated in the IPPC application, if ERA receives complaints regarding odours from the Scheme, an odour monitoring programme based on sniff testing can be prepared and implemented

**BAT 11**

How will the monitoring of the annual consumption of water, energy and raw materials, as well as the annual generation of residues and wastewater, be carried out?

Water and electricity consumption will be metered. There will be minimal consumption of raw materials, as described in section B2.3 of the original IPPC application; nevertheless consumption will be monitored through purchase records. The quantity of each type of waste removed from site (including waste water, if applicable) will be measured using the site's weighbridge and recorded.

DDE Attard Ltd has identified that overflow to land will be considered to be discharge to land, and if such occurs this will be measured using method indicated in Appendix C2 of Volume 3: Response to Reviews and Regulatory Consultation.

**1.3 Emissions to air**

**BAT 12**

Kindly specify which of the following elements are included or proposed to be included as part of the odour management plan. Should any of these elements not be currently included in such plan, kindly provide a timeframe by when these elements will be included.

Elements	Yes/No
1) A protocol containing actions and timelines	
2) A protocol conducting odour monitoring as set out in BAT 10	
3) A protocol for response to identified odour incidents, e.g. complaints	
4) An odour prevention and reduction programme designed to identify the source(s); to characterize the contributions of the sources; and to implement prevention and/or reduction measures	

Not applicable. Due to the nature and scale of the potentially odour-generating activities, the mitigation measures in place, and the distance from odour sensitive receptors (as described in section B3.7 of the original IPPC application), odour nuisance at sensitive receptors is not expected.

**BAT 13**

Kindly specify which odour minimisation technique shall be implemented on site and provide details of the chosen technique:

Technique	Yes/No
1) Minimizing residence times	
2)	
Using chemical treatment	
3) Optimizing aerobic treatment	

Not applicable.

**BAT 14**

Which techniques will be used in order to reduce diffuse emissions to air, in particular dust, organic compounds and odour?

Technique	Yes/No
a) Minimizing the numberof potential diffuse emission sources	The hardstanding will be installed over the entire site, which will reduce dust entrainment from vehicle movements.
b) Selection and use ofhigh-integrity equipment	Not applicable.

	c) Corrosion prevention	Yes. Construction materials are appropriate to the type of activities carried out.	
	d) Containment, collection and treatment of diffuse emissions	Yes. Metal wetting is carried out during shredding; see also the response to BAT 25.	
	e) Dampening	Yes. Metals are wetted during shredding.	
	f) Maintenance	Yes. Please refer to section B2.5 of the original IPPC application and section C2.5 of the approved variation application (IP/001/13/V2).	
	g) Cleaning of waste treatment and storage areas	Yes. Regular cleaning of the site is already implemented, and housekeeping will improve once the site is fully surfaced. Equipment is cleaned as needed.	
	h) Leak detection and repair programmes(LDAR)	Not applicable. The Scheme will not generate significant emissions of volatile organic compounds.	

BAT 15

Kindly specify which of the following techniques shall be utilised to ensure safe use of flares, and details of how this willbe monitored? Kindly provide details of the monitoring, which will be carried out during such flaring.

Technique	Yes/No
a) Correct plant design	
b) Plant management	

Not applicable. The Scheme does not include any plant requiring flaring.

BAT 16

How will flaring emissions be reduced? Which techniques will be applied in order to do so?

Techniques	Yes/No
a) Correct design of flaring devices	
b) Monitoring and recording as part of flare management	

Not applicable. The Scheme does not include any plant requiring flaring.

Noise and vibrations

BAT 17

How will noise and vibration emissions be mitigated? Will a noise and vibrationmanagement plan be implemented? If yes, which features will be included?

Feature	Yes/No
a) A protocol containing appropriate actions andtimelines	A noise study was undertaken as part of the original IPPC application (section B3.9), and no discernible impact on the nearest receptor was identified. The study also concluded that new equipmentwas unlikely to have a significant impact due to its location, existing noise levels, the distance to receptors, and the noise output of other activities in the area. However, as required by the IPPC permit,another noise monitoring study will be carried out once the new equipment is operational. Should a significant impact be identified, a protocol for reducing impacts will be drawn up.
b) A protocol for conducting noiseand vibration monitoring	A method statement for carrying out noise monitoring has been submitted to ERA, as required by the IPPC permit.
c) A protocol for response to identified noise and vibrationevents, e.g. complaints	As required by the IPPC permit, the Scheme will investigate complaints regarding emissions, and take the required actions.
d) A noise and vibration reduction programme designed to identify the source(s), to measure/estimate noise and vibration exposure, to characterize the contributions ofthe sources and to implement prevention and/or reduction measures.	As mentioned, another noise monitoring study is planned. Should a significant noise impact be identified, a noise mitigation programme will be drawn up and implemented.

In this variation there is no new machinery, hence this is not applicable.



**BAT 18**

Kindly specify which of the following techniques shall be implemented to reduce emissions from noise and vibration. Details of the chosen technique are to be submitted.

Feature	Yes/No
a) Appropriate location of equipment and buildings	Yes – as described in the noise study (section B3.9 of the original IPPC application), the nearest residential area is located approximately 220 m south of the Scheme site. The area between the residential area and the Scheme site is occupied by industrial and storage uses, including buildings, which screen noise emissions from the Scheme.
b) Operational measures	Yes: (i) A maintenance plan is included in section B2.5 of the original IPPC application and section C2.5 of the approved variation application; (ii) Not applicable, as the only buildings on site will be for offices / staff facilities; (iii) Equipment will be operated by trained staff; (iv) The Scheme will not operate on Sundays and at night ; and (v) A noise study undertaken as part of the original IPPC application (section B3.9) identified no discernible impact on the nearest receptor. The study also concluded that new equipment was unlikely to have a significant impact due to its location, existing noise levels, the distance to receptors, and the noise output of other activities in the area. However, as required by the IPPC permit, another noise monitoring study will be carried out once the new equipment is operational. Should a significant impact be identified, further noise control measures will be identified.
c) Low-noise equipment	The noise study (submitted in section B3.9 of the original IPPC application) identified no discernible impact on the nearest receptor. The study also concluded that new equipment was unlikely to have a significant impact. However, another noise monitoring study will be carried out once the new equipment is operational. Should a significant impact be identified, further noise control measures will be identified.
d) Noise and vibration control equipment	The noise study (submitted in section B3.9 of the original IPPC application) identified no discernible impact on the nearest receptor. The study also concluded that new equipment was unlikely to have a significant impact. However, another noise monitoring study will be carried out once the new equipment is operational; should a significant impact be identified, further noise control measures will be identified.
e) Noise attenuation	The noise study (submitted in section B3.9 of the original IPPC application) identified no discernible impact on the nearest receptor. The study also concluded that new equipment was unlikely to have a significant impact. However, another noise monitoring study will be carried out once the new equipment is operational; should a significant impact be identified, further noise control measures will be identified. Additionally, the new shredders will be located inside a shed.

In this variation there is no new machinery, hence this is not applicable.

## 1.5. Emissions to water

### BAT 19

How will wastewater volume be reduced? Moreover, which techniques will be applied to reduce emissions to soil and water? Kindly provide details of the relevant technique.

Technique	Yes/No
a) Water management	Yes – see sections B2.7 and B3.5 of the original IPPC application.
b) Water recirculation	Yes – see sections B2.7 and B3.5 of the original IPPC application.
c) Impermeable surface	Yes – see section B3.5 of the original IPPC application.
d) Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels	<p>The only overflow in place at the Scheme will be of the rainwater reservoir, whereas any potentially contaminated rainwater will have been treated before being received in the reservoir (see section B3.5 of the original IPPC application). Additionally, as required by the IPPC permit, the contents of the reservoir will be monitored.</p> <p>Bunding for fuel tanks will be in place, to which certification was provided for 800L tank (refer to Appendix A16 in Volume 3: Response to Reviews and Regulatory Consultation of the approved variation IP/001/13/V2)</p>
e) Roofing of waste storage and treatment areas	Yes – hazardous waste will be stored under cover. Treatment of ELVs, and WEEE will be carried out under cover.
f) Segregation of water streams	<p>Yes – sections B3.3 and B3.5 of the original IPPC application.</p> <p>Section B3.5 of the original IPPC application IP 001/13 stated “Clean rainwater from roofed areas will be received in the underground reservoir without pre-treatment”. This will not be the case. Rainwater from the roof surface will be diverted through downpipes to the surface gutters. In turn all water will be treated as per section 4.26 of Section B3.5. It is to be noted that roofed area represents only some 20% of the site area.</p> <p>A drainage plan showing how all effluent (both clean rainwater and contaminated effluent) will be handled can be found in Appendix B9.</p>
g) Adequate drainage infrastructure	Yes – sections B3.3 and B3.5 of the original IPPC application.
h) Design and maintenance provisionsto allow detection and repair of leaks	Yes. A maintenance programme is in place for the sitesurfacing and the surface water management system – see section B2.5 of the original IPPC application. The only underground pipes are for the surface water management system.
i) Appropriate bufferstorage capacity	Not applicable.

BAT 20

How will the treatment procedure for wastewater be undertaken? Which techniques will be applied?  
*Operator is to also provide justification as to the proposed abatement technique of choice. Moreover, the operator is to also indicate the expected emission limits depending on the proposed technique(s).*

Surface water will be managed as described in section B3.5 of the original IPPC application.

Technique	Yes/No
<b>Preliminary and primary treatment</b>	
a) Equalization	No
b) Neutralization	No
c) Physical separation, e.g. screens, sieves, grit separators, grease separators, oil-water separation or primary settlement tanks	Yes, as described in section B3.5 of the original IPPC application, rainwater reaching the internal roads and open storage areas will be treated in a silt- trap and oil-water interceptors before being received in a reservoir.
<b>Physico-chemical treatment, e.g.</b>	
d) Adsorption	No
e) Distillation/rectification	No
f) Precipitation	No
g) Chemical oxidation	No
h) Chemical reduction	No
i) Evaporation	No
j) Ion exchange	No
k) Stripping	No

Table 6.1 is not applicable as there are no direct discharges to a water body.

1.6 Emissions from accidents and incidents	
BAT 21	
Kindly specify how each of the following techniques shall be implemented to preventor limit the environmental consequences of accidents and incidents.	
Technique	
a) Protection measures The site will be closed after hours, and a night security guard will be employed.  As described in section B2.8 of the original IPPC application, a fire and explosion prevention plan will be in place, and a fire detection and firefighting system willbe installed. An updated Fire Prevention and Response Plan was provided as part of the approved variation application (section C2.8). A fire safety report was also commissioned as part of the original IPPC application (Volume 3), which indicated that access for fire services is adequate.	
b) Management of incidental/accidental emissions A Spill Prevention and Response Plan has been provided (section B2.8 of the original IPPC application)	
c) Incident/accident registration and assessment system  Incidents will be recorded in the site diary. Procedures for improvements after incidents / accidents / nonconformities will be included as part of the EMS.	
Emissions from accidents and incidents	
BAT 22	
How will the substitution of materials with waste be carried out? Where will it apply?  While none of the waste outputs are usable for the treatment of other wastes on site,pallets that arrive with incoming waste will be reused for transportation purposes (including export).  Additionally, clean rainwater from the larger reservoir on site will be used for irrigation and washing within the site as far as practicable.	
1.8 Energy efficiency	
BAT 23	
Technique	
a) Energy efficiency plan Energy consumption estimates and measures for energy efficiency are included in section B2.6 of the original IPPC application and section C3.6 of the approved variation application.  DDE Attard will undertake an Energy Audit for current operations and future plans which will be studied and recommendations made. From this energy audit, discussions will be undertaken and recommendations suggested will be assessed for applicability and implementation. Once this exercise is completed this information will be provided to ERA.	
b) Energy balance record Energy consumption records will be kept by type. No export of energy from theScheme is currently envisaged; however, should this be proposed in the future records would also be kept.	
Kindly specify how each of the following techniques shall be implemented on site.	

### 1.9 Reuse of packaging

#### BAT 24

Kindly specify how will the re-use of waste packaging shall be maximised to reduce the amount of waste sent for disposal. Kindly provide a copy of the residues management plan.

Minimal packaging waste is foreseen, however, pallets that arrive with incoming waste will be reused for transportation purposes (including export). The residues management plan describing the fate of each waste type (including maximisation of recycling / recovery) is included as part of section B3.1 of the original IPPC application and section C3.1 of the approved variation application.

**2. BAT conclusions for the mechanical treatment of waste**

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.

**2.1 General BAT conclusions for the mechanical treatment of waste**

**2.1.1 Emissions to air**

**BAT 25**

Kindly specify which of the following technique(s) shall be used in order to reduce emissions to air of the specified parameters. Further details of the relevant techniques are to be provided in the relevant section of the application.

Technique	Yes/No
a) Cyclone	*
b) Fabric filter	*
c) Wet scrubbing	*
d) Water injection into the shredder	Yes – as described in section B3.6 of the original IPPC application.

\* The shredder includes water injection during metal shredding, as described in the IPPC application. The technical and economic feasibility of options for additional abatement is currently being investigated; the outcome of this investigation will be communicated to ERA once finalised.

**2.2 BAT conclusions for the mechanical treatment in shredders of metal waste**

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.

**2.2.1 Overall environmental performance**

**BAT 26**

Kindly specify how each of the following techniques shall be implemented in order to improve the overall environmental performance?

Technique
a) Implementation of a detailed inspection procedure for baled waste before shredding Any waste received already baled will be unpacked and checked before shredding.
b) Removal of dangerous items from the waste input stream and their safe disposal (e.g. gas cylinders, non-depolluted EoLVs, non-depolluted WEEE, items contaminated with PCBs or mercury, radioactive items) This practice will be implemented, as described in section B3.1 (Volume 2) of the original IPPC application.
c) Treatment of containers only when accompanied by a declaration of cleanliness As described in Volume 3 of the original IPPC application, LPG tanks will only be accepted on site if emptied and pre-cleaned by an authorised facility or industrial operator, and certified as such. In the case of LPG tanks in end-of-life vehicles, these will be emptied on site by vehicle idling and sent for cleaning to Liquigas Malta Ltd before being returned for shredding.

**BAT 27**

Which techniques will be used to prevent deflagrations as well as to reduce emissions from deflagrations?

Technique	Yes/No
a) Deflagration management plan	<p>Yes.</p> <p>As described in Volume 2 of the original IPPC application, various activities will be undertaken to reduce the risk of deflagration,including:</p> <ul style="list-style-type: none"><li>• Depollution of end-of-life vehicles before shredding (including removalof batteries, airbags, and flammablesubstances such as fuels and oils);</li><li>• Certifying LPG tanks as empty before shredding;</li><li>• Unbaling of waste received alreadybaled; and</li><li>• Wetting of metals during shredding.</li></ul> <p>A Fire Prevention and Response Plan is included in the IPPC variation application.</p> <p>The further abatement being considered for the shredder (as per BAT 25) will also take into account the need to prevent deflagration.</p> <p>In the case of depollution of EOLVs, deflagration incidents will be prevented by:</p> <p>Waste is being visually inspected upon entry and determined whether these are hazardous or not. If these are not within the acceptance waste criteria these are stopped from being deposited within the facility. Metal items that derive from hazardous storage, such as gas cylinders, fuel tanks etc, are depolluted prior to entering the facility and with all the valves removed. One must keep in mind that such precaution is observed to safeguard the shredder and sorting machinery and above all the operators’ safety.</p>
b) Pressure relief dampers	No (point (c) is applied).
c) Pre-shredding	Yes. Metals are already shredded twice; in effect the first shredding round is acting as apre-shredding activity. Additionally, a second Eddy current shredder and sorter are already installed.

2.2.3 Energy efficiency

BAT 28

Kindly specify how the shredder operations shall be stabilised to ensure efficient use of energy?

The shredder is loaded using a grab excavator, which is under the control of a trained operator. In this way the feed is equalised, avoiding disruptions.

2.3 BAT conclusions for the treatment of WEEE containing VFCs and/or VHCs

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.

2.3.1 Emissions to air

BAT 29

Kindly specify how technique a. and one or both of techniques b. and c. shall be implemented to ensure that emissions of organic compounds to air shall be prevented and reduced?

Technique	Yes/No
a) Optimized removal and capture of refrigerants and oils	
b) Cryogenic condensation	
c) Adsorption	

Kindly specify the emissions level which the proposed techniques is expected to achieve and include monitoring details as part of the monitoring programme submitted in section B3.10 of the application.

Not applicable. The Scheme will not carry out treatment of WEEE containing VFCs (volatile (hydro)fluorocarbons) and/or VHCs (volatile hydrocarbons).

2.3.2 Explosions

BAT 30

How will emissions from explosions be prevented when treating WEEE containing VFCs and/or VHCs? Which techniques will be suitable for use and application?

Technique	Yes/No
a) Inert atmosphere	Not applicable
b) Forced ventilation	Not applicable

Not applicable. The Scheme will not carry out treatment of WEEE containing VFCs and/or VHCs.



**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.

**2.4.1 Emissions to air**

**BAT 31**

Kindly specify which of the following techniques shall be implemented to reduce emissions to air of organic compounds.

Technique	Yes/No
a) Adsorption	
b) Biofilter	
c) Thermal oxidation	
d) Wet scrubbing	

Kindly specify the emissions levels which the proposed technique(s) is expected to achieve and include monitoring details as part of the monitoring programme submitted in section B3.10 of the application.

Not applicable. Section 2.4 of this document applies 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, i.e. pre-treatment of waste for incineration or co-incineration. The only waste with calorific value that will be treated mechanically at the Scheme is wood, which however, will not be pre-treated for incineration or co-incineration.

Additionally, wood does not release VOC when shredded.

**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.

**2.5.1. Emissions to air**

**BAT 32**

Which measures and schemes will be implemented to reduce mercury emissions to air?

Not applicable. Mechanical treatment of WEEE containing mercury is not envisaged at the Scheme.

3. BAT conclusions for the biological treatment of waste

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.

3.1. General BAT conclusions for the biological treatment of waste

3.1.1. Overall environmental performance

BAT 33

Kindly describe the relevant technique which will be implemented in order to reduce odour emissions and improving the overall environmental performance in relation to waste input?

Not applicable.

3.1.2. Emissions to air

BAT 34

Kindly specify which technique shall be implemented to reduce channelled emissions to air of dust, organic and odorous compounds to be reduced?

	Technique	Yes/No
a)	Adsorption	No
b)	Biofilter	Yes
c)	Fabric filter	No
d)	Thermal oxidation	No
e)	Wet scrubbing	No

Kindly specify the emissions level which the proposed technique(s) is expected to achieve and include monitoring details as part of the monitoring programme submitted in section B3.10 of the application.

Considering that the technique used for reducing emissions to air is identified as BAT, it is envisaged that the following emission levels can be met:

- NH3: 20 mg/Nm<sup>3</sup>;
- Dust: 5 mg/Nm<sup>3</sup>; and
- TVOC: 40 mg/Nm<sup>3</sup>.

3.1.3. Emissions to water and water usage

**BAT 35**  
Kindly provide a description of how each of the following techniques shall be implemented to reduce the generation of waste water, as well as water usage?  
Not applicable

Technique
a) Segregation of water streams
T
b) Water recirculation
c) Minimization of the generation of leachate

**BAT 36**  
How will emissions to air be reduced? Which strategy will be utilized to improve the overall environmental performance? Which of the following waste and process parameters will be monitored?

Not applicable

Parameters	Yes/No
a) Waste input characteristics(e.g. C to N ratio, particle size)	
b) Temperature and moisture content at different points in the windrow	
c) 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	
d) Windrow porosity, height and width	

3.2.2. Odour and diffuse emissions to air

BAT 37

How will diffuse emissions to air of dust, odour and bioaerosols be reduced from open-air treatment steps? Will the following techniques be used in order to do so?

Technique	Yes/No
a) Use of semipermeable membrane covers	
b) Adaptation of operations to the meteorological conditions	

If none of the above techniques is currently being implemented, kindly provide aproposal including timeframs of the technique which shall be implemented.

Not applicable.

3.3 BAT conclusions for the anaerobic treatment of waste

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

3.3.1. Emissions to air

BAT 38

How can a reduction in emissions to air be achieved along with improvements in theoverall environmental performance? Which of the following key waste and process parameters will be monitored?

Parameters	Yes/No
a) pH and alkalinity of the digester feed	
b) digester operating temperature	
c) hydraulic and organic loading rates of the digester feed	
d) concentration of volatile fatty acids (VFA) and ammonia within the digester and digestate	
e) biogas quantity, composition (e.g. H2S) and pressure	
f) liquid and foam levels in the digester	

Not applicable. Anaerobic treatment of waste is not envisaged at the Scheme.

**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.

### 3.4.1. Emissions to air

BAT 39
--------

Kindly provide details of how each of the following techniques is or will be applied?

Kindly provide details of how each of the following techniques is or will be applied:

Technique
a) Segregation of the waste gas streams
b) Recirculation of waste gas

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

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

#### 4.1.1 Overall environmental performance

BAT 40
--------

Kindly describe how waste input will be monitored and for which parameters?

Finally, describe how waste input will be monitored and for which parameters.

#### 4.1.1 Overall environmental performance

BAT 41
--------

How will emissions of dust, organic compounds and  $\text{NH}_3$  be reduced? Which technique(s) shall be implemented to mitigate such emissions?

Technique	Yes/No
a) Adsorption	
b) Biofilter	
c) Fabric filter	
d) Wet scrubbing	

How will emissions of dust, organic compounds and NH<sub>3</sub> be reduced? Which technique(s) shall be implemented to mitigate such emissions?

Technique	Yes/No
-----------	--------

4.2 BAT conclusions for the re-refining of waste oil

4.2.1 Overall environmental performance

BAT 42

Kindly specify how monitoring of the waste input in terms of chlorinated compounds will be carried out.

Not applicable. Physico-chemical treatment of waste is not envisaged at the Scheme

BAT 43

How can the quantity of waste be reduced to minimize amounts sent for disposal? Will the following techniques apply?

Technique	Yes/No
a) Material recovery	
b) Energy recovery	

Not applicable. Physico-chemical treatment of waste is not envisaged at the Scheme

BAT 44

Kindly specify which of the following techniques shall be applied in order to reduce emissions of organic compounds to air.

Technique	Yes/No
a) Adsorption	
b) Thermal oxidation	
c) Wet scrubbing	

Kindly specify the emission limits (in relation to the BAT AELs set in section 4.5) which can be achieved through the implementation of the proposed technique(s).

Not applicable. Re-refining of waste oil is not envisaged at the Scheme.

4.3 BAT conclusions for the physico-chemical treatment of waste with calorific value

4.3.1 Emissions to air

BAT 45

Kindly specify which of the following techniques shall be applied in order to reduce emissions of organic compounds to air.

Technique	Yes/No
a) Adsorption	
b) Cryogenic condensation	
c) Thermal oxidation	
d) Wet scrubbing	

Kindly specify the emission limits (in relation to the BAT AELs set in section 4.5) which can be achieved through the implementation of the proposed technique(s).

Not applicable. Physico-chemical treatment of waste with calorific value is not envisaged at the Scheme.

88

4.4 BAT conclusions for the regeneration of spent solvents

4.4.1 Overall environmental performance

BAT 46

Kindly specify which of the following techniques shall be applied in order to improve the environmental performance of the regeneration of spent solvent.

Technique	Yes/No
a) Material recovery	
b) Energy recovery	

Not applicable. Regeneration of spent solvents is not envisaged at the Scheme.

4.4.2 Emissions to air

BAT 47

Kindly specify which of the following techniques shall be implemented in order to reduce emission of organic compounds to air.

Technique	Yes/No
a) Recirculation of process off-gases in a steam boiler	
b) Adsorption	
c) Thermal oxidation	
d) Condensation or cryogenic condensation	
e) Wet scrubbing	

Kindly specify the emission limits (in relation to the BAT AELs set in section 4.5) which can be achieved through the implementation of the proposed technique(s).

Not applicable. Regeneration of spent solvents is not envisaged at the Scheme.

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

Parameter	Unit	BAT-AEL <sup>(46)</sup> (Average over the sampling period)
TVOC	Mg/Nm <sup>3</sup>	5-30
Kindly specify the emission limit for TVOC which can be achieved using the proposed technology. Not applicable. Re-refining of waste oil, the physico-chemical treatment of waste with calorific value and the regeneration of spent solvents are not envisaged at the Scheme.		

4.6 BAT conclusions for the thermal treatment of spent activated carbon, waste catalysts and excavated contaminated soil

BAT 48

Kindly specify how each of the following technqiues is or shall be implemented in orderto improve overall environmental performance.

Not applicable. Thermal treatment of spent activated carbon, waste catalysts orexcavated contaminated soil is not envisaged at the Scheme.

Technique
a) Heat recovery from the furnace off-gas
b) Indirectly fired furnace
c) Process-integrated techniques to reduce emissions to air

4.6.2. Emissions to air

BAT 49

Kindly specify which technique(s)shall be implemented to reduce emissions of HCl, HF,dust and organic compounds to air.

Technique	Yes/No
a) Cyclone	
b) Electrostatic precipitator (ESP)	
c) Fabric filter	
d) Wet scrubbing	
e) Adsorption	
f) Condensation	
g) Thermal oxidation	

Not applicable. Thermal treatment of spent activated carbon, waste catalysts orexcavated contaminated soil is not envisaged at the Scheme.



4.7 BAT conclusions for the water washing of excavated contaminated soil

4.7.1. Emissions to air

**BAT 50**  
Kindly specify which of the following techniques shall be implemented in order to reduce emissions of fust and organic compounds to air together with details of the associated monitoring in line with BAT 8.

Technique	Yes/No
a) Adsorption	
b) Fabric filter	
c) Wet scrubbing	

Not applicable. Water washing of excavated contaminated soil is not envisaged at the Scheme.

4.8 BAT conclusions for the decontamination of equipment containing PCBs

4.8.1. Overall environmental performance

**BAT 51**  
Kindly specify how the following techniques shall be implemented in order to improve the overall environmental performance and reduce channelled emissions of PCBs and organic compounds to air? Kindly specify associated monitoring details in line with BAT 8.

Not applicable. Decontamination of equipment containing PCBs is not envisaged at the Scheme.

Technique
a) Coating of the storage and treatment areas
b) Implementation of staff access rules to prevent dispersion of contamination
c) Optimized equipment cleaning and drainage
d) Control and monitoring of emissions to air
e) Disposal of waste treatment residues
f) Recovery of solvent when solvent washing is used

## 5. BAT conclusions for the treatment of water-based liquid waste

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.

### 5.1 Overall environmental performance

#### BAT 53

Kindly specify what type of monitoring will be carried out for the waste input.

Not applicable. Water-based liquid waste will not be accepted for treatment at the Scheme.

## **Annex 3: Risk Assessment Methodology**

## RISK ASSESSMENT METHODOLOGY

### Source-Pathway-Receptor Linkage

1. An environmental risk occurs when there is a means by which a hazard can result in a deleterious impact on the surrounding environment, i.e. receptors. The presence of a hazard alone does not constitute a risk. A risk is only present if there is a pathway which links the source (hazard) to the receptor. This is known as the source–pathway–receptor linkage.
2. Environmental risk assessment is the process by which source–pathway–receptor linkages are identified and evaluated. If any of the three elements are absent then there is no complete linkage and thus no unacceptable risk.

### Risk Assessment Criteria

3. If a source–pathway–receptor linkage is found, the magnitude of a risk is a function of the consequences of pollution and the likelihood that such pollution will occur.
4. The risk criteria being applied to this assessment are based on a matrix consistent with ISO 31010: Risk management: Risk assessment techniques.
5. Table 6 presents criteria for assessing environmental consequences, whereas Table 7 presents criteria for assessing the likelihood of the event occurring.

**Table 6: Criteria for assessing environmental consequences**

Severity level	Effects on natural environment
1: Insignificant	Limited damage to minimal area of low significance.
2: Minor	Minor effects on biological or physical environment. Minor short/medium-term damage to small area of limited significance.
3: Moderate	Moderate effects on biological or physical environment (e.g. air, water) but not affecting ecosystem function. Moderate short/medium-term widespread impacts (e.g. significant spills).
4: Major	Serious environmental effects with some impairment of ecosystem function. Relatively widespread medium-long term impacts.
5: Catastrophic	Very serious environmental effects with impairment of ecosystem function. Long

	term, widespread effects on significant environment (e.g. national park).
--	---

**Table 7: Measure of likelihood**

Level	Descriptor	Description	Guideline frequency
A	Almost certain	Consequence is expected to occur in most circumstances	Occurs more than once per month
B	Likely	Consequence will probably occur in most circumstances	Occurs once every 1 month – 1 year
C	Occasional	Consequence should occur at some time	Occurs once every 1 year – 10 years
D	Unlikely	Consequence could occur at some time	Occurs once every 10 years – 100 years
E	Rare	Consequence may only occur in exceptional circumstances	Occurs less than once every 100 years

6. The overall risk level is then determined by combining the two factors, using the matrix in **Table 8**.

**Table 8: Risk matrix**

Likelihood	Environmental Consequence					No pollutant linkage
	1: Insignificant	2: Minor	3: Moderate	4: Major	5: Catastrophic	
<b>A: Almost Certain</b>	Low	Moderate	Extreme	Extreme	Extreme	None
<b>B: Likely</b>	Low	Moderate	High	Extreme	Extreme	
<b>C: Occasional</b>	Very Low	Moderate	High	High	Extreme	
<b>D: Unlikely</b>	Very Low	Low	Moderate	High	High	
<b>E: Rare</b>	Very Low	Low	Moderate	Moderate	High	

## **Annex 4: Fire Prevention and Response Plan**

# **FIRE PREVENTION AND RESPONSE PLAN**

## **Fire Risks**

1. The Scheme includes storage of various flammable materials, such as fuel, tyres, and wood, lithium batteries and sources of sparks (such as during hot working of metal) that could start a fire or cause an explosion.
2. In this situation the presence of a large quantity of flammable material would also facilitate the spread of a fire.
3. It is not that tyres do not ignite easily, however, once they catch fire the development of the fire is rapid, reaches high temperatures, and is difficult to control. Therefore the best means of reducing the risks of tyre fires is to reduce the possibility of a fire starting and to limit the spread of a fire if it occurs.

## **Fire Precautions**

### **Maintenance**

4. Regular checks will be carried out on the following, in accordance with the maintenance programme of the facility; repairs will be carried out when necessary:
  - Equipment (whether electric or running on fuel), including shredders;
  - Vehicles;
  - Surface water / wastewater management system;
  - Storage containers;
  - Smoke / fire detection units and firefighting equipment; and
  - Security fences.

## **ELV Processing**

5. Several precautions will be followed during ELV depollution and dismantling (both in temporary and permanent area), to reduce the risk of fire / explosion. These are described below.

6. The following general precautions are applicable, in accordance with the ELV Depollution and Dismantling procedure (section B2.2.1 of the original IPPC application):

- Training will be given to the employees working on vehicle depollution and dismantling
- Vehicles arriving at the site will be checked for any fluid leaks, including fuel;
- The battery will be removed first; batteries will be removed as soon as practical after vehicles arrive on site, to reduce the risk of electrical short-circuits. When handling batteries, the terminals are not to be touched with metal objects (such as jewellery), which can cause short-circuits;
- Depollution will be carried out using a dedicated vehicle depollution system. Firesafety signage such as “No Smoking or Naked Lights” will be put up at this work station, and the correct fire extinguishing medium will be stored in the vicinity;
- The vehicle will be earthed during depollution reduce further the risk of sparks or explosion;
- Fuel will be removed by suction (except when the tank is damaged), to reduce the release of vapour;
- Fuels and hazardous oils collected during depollution will be stored separately in labelled containers integrated within the depollution equipment;
- Airbags will only be removed after 30 minutes have passed from battery removal;
- No vehicles will be shredded unless they have been properly depolluted.



- 7 The depollution of LPG vehicles is subject to the following additional precautions:
- Only employees certified as competent in such operations will be allowed to work on LPG vehicles;
  - LPG tanks will be emptied by running the vehicle. LPG will not be vented directly to the atmosphere;
  - The vehicle will be checked for any gas leaks with proper detection equipment prior to removing the battery; the battery not disconnected without this process, especially if the battery is located close to the LPG tank;
  - The vehicle will be stored in a separate area in the open, away from other vehicles until the LPG tank is removed. This avoids the accumulation of vapours that might occur if the LPG tank is removed in an enclosed area; and
  - The empty LPG tank must be sent for cleaning (and certified as such) before being shredded.
- 8 The following precautions are applicable to the processing of end-of-life electric and hybrid vehicles:
- The high-voltage system must be isolated and the high-voltage battery removed before depollution commences; and
  - High-voltage batteries should be stored separately, in a specialized container built for safe storage of lithium batteries and should not be exposed to high temperatures, thus reducing the risk of fire / explosion.
  - It is important for core storage areas to be checked regularly to ensure that fluids are not leaking, which may cause a fire hazard. A weekly inspection will be carried out of core storage areas and containers.
  - The area where the containers will be held will be appropriately labelled and the appropriate fire signage such as “No smoking or naked lights” will be put up.

## **Storage and Handling**

8. Tyres will be stored in designated areas (as shown in Figure 2); the storage quantity will be kept to the minimum practicable, and tyres will be shipped as soon as practicable after receipt.
9. Where possible a separation distance of 6 m between the stockpile of tyres and other waste streams, machinery and vehicles will be maintained. When this separation distance cannot be achieved, such as due to a delay

in locating a receiving facility abroad, the Operator will create a fire wall with the use of temporary concrete blocks.

10. Diesel will be stored inside a dedicated and bunded 8,000 L tank. Firefighting equipment will be stationed near this container and appropriate safety and fire preventive signage will be put up.
11. Any spills on site, for instance of fuels and hazardous oils, will be immediately collected in accordance with the Spill Prevention and Response Plan.
12. Batteries will be stored in closed metal or plastic leak-proof containers in the covered shed, away from flammable liquids or gases.
13. Cylinders containing acetylene or LPG used for hot cutting will be stored vertically, using cylinder stands or other methods to secure them. Cylinder carriages / trolleys will be used to transport gas cylinders around the site. Cylinders will not be lifted by their valve or valve guard.
14. These cylinders will be stored upright in a lockable cage / cabinet inside the well-ventilated shed, in order to ensure safety and reduce abuse. This storage facility will be constructed in a way that ensures that no water can accumulate at the bottom and possibly cause corrosion.
15. Acetylene and LPG cylinders will:
  - Be kept away from direct sunlight and from other objects that could fall on them;
  - Have the appropriate gas pressure regulators that have passed inspection;
  - Be segregated according to their contents, and according to whether they are full or empty;
  - Be stored with their valve cover, if so equipped;
  - Any damaged cylinders will be isolated and removed from site as soon as possible;
  - Be properly marked and labelled. A Safety Data Sheet will be available for every gas and gas mixture, and the caged area will be labelled with the hazard symbol to reflect gas under pressure and any other relevant hazard;
  - Moved in a controlled manner, secured to avoid accidents or damage;
  - Stored upright in lockable cages in well-ventilated areas; water will not be

allowed to collect in the cage; and

- Stored least 6 metres away from any potential sources of ignition, such as batteries and electrical equipment.

16. Cylinders should not be stored:

- Inside buildings;
- Near easily ignited materials such as wood, paper, oil and grease;
- Near ignition sources; or
- Near an emergency exit area.

17. Electric and Hybrid ELV Batteries:

- The lithium battery will be removed from the vehicle's battery upon entry into the facility. This approach ensures separate handling of the battery from the rest of the vehicle, reducing the required storage volume.
- Once dismantled, the vehicle can be treated conventionally, while the battery demands specific attention due to its susceptibility to spontaneous ignition when damaged. Initially, the batteries are stored in a specialized container equipped with safety features such as a temperature sensor to trigger the fire extinguishing system, manual activation of the extinguishing system, a gas extinguishing system, and a water connection for flooding if necessary.
- Proper disposal of water used to extinguish potential fires is emphasized due to its contamination with harmful chemicals from the batteries. This meticulous process addresses fire safety concerns and ensures the secure handling of electric vehicle batteries within the facility.
- The extraction of electric and hybrid batteries from end-of-life vehicles follows a meticulous process designed for worker safety and environmental responsibility.
- The procedure begins with the careful preparation of tools, including specialized equipment such as a toolbox for HV-vehicles, isolation mats,

and barrier posts with chains to create a secure work environment.

- Upon the vehicle's arrival at the facility, it is elevated to provide easy access to the battery compartment. A jack is strategically placed under the targeted battery, ensuring stability during removal. Highly trained workers then manually disconnect wiring and other connections, wearing appropriate personal protective equipment and following stringent safety protocols. Isolation mats act as an additional safety measure, minimizing the risk of electric shock by creating a barrier between the worker and the ground.
- The battery is delicately lifted and maneuvered out of the vehicle, ensuring its integrity. Subsequently, the extracted battery is securely placed in a specialized container designed for high-voltage batteries, guaranteeing safe transportation.
- These containers are stored in designated areas, adhering to stringent safety regulations.

## **Hot Work**

18. A Standard Operating Procedure (SOP) will be established for hot working. Employees doing hot works will be required to follow this SOP, and to have a firewatch equipped with the correct fire extinguishing medium to assist them whilst carrying out such work.
19. No hot works will be permitted to take place within 6 metres of flammable materials such as tyres. Severe Weather
20. Electrical (lightning) storms can cause a fire hazard at the Scheme site due to the presence of flammable materials on site. Severe wind storms can also damage electrical structures, in addition to being a safety hazard.
21. The Technically Competent Person (TCP) will monitor weather information (including warnings issued by the Meteorological Office), especially during wet periods, where thunderstorms or severe winds might hit the island. The Meteorological Office (tel: 5230 2021) will be contacted to check for predicted severe weather.
22. In such severe cases, the management will inform those on site through the alarm / notification system and will also prohibit any operation in the yard until the weather conditions improve or are declared safe to work in. Employees will be directed to a safe area away from metal heaps and

flammable equipment until the TCP gives the allclear. The TCP will also assess whether any structure has been damaged by the storm, and ensure that appropriate actions are taken.

### **Signage**

23. Due to the fire load that will exist within the Scheme site, the entire site will be designated as a non-smoking zone. The company will designate and label smoking zones outside the premises and inform all staff of such locations.
24. Safety signs will be located around the site, including no smoking / naked flames notices, and signs marking the location of fire hydrants and the fire extinguisher stations. Signs will also identify the type of fire that each fire extinguisher can be used for.
25. The telephone numbers of key site personnel and emergency services will be also placed at easily accessible locations on site to ensure a speedy response in case of an emergency.

### **Protection against Arson**

26. The site will be surrounded by a steel fence, and access to the site will be through gates, which will be closed outside operating hours.
27. A security guard is employed to guard the site during non-operational hours; this facilitates a quicker response in case of a fire incident outside operating hours.

### **Training**

28. Emergency response training will be part of the Scheme's ongoing training programme and will include:
  - The location of the fire fighting equipment;
  - Employee roles and responsibilities;
  - Known threats and hazards;
  - Raising the alarm, notification and communications procedures;

- Emergency response procedure;
  - Location of assembly point;
  - Location of emergency exits or shelters; and
  - Emergency shutdown procedure.
29. Specialised training will also be given to employees assigned specialised duties under this Plan, such as on coordinating the evacuation procedure, fire fighting and first aid.
30. Training will be given when:
- This Plan is initially developed;
  - When a new employee is recruited;
  - Whenever an employee is assigned a new task;
  - Whenever an employee's responsibilities or designated actions under the Plan change;
  - Whenever new equipment, material, or processes are introduced into the work place;
  - Whenever the layout of the site is changed; and
  - Whenever this Plan is updated.
31. The TCP will also organise regular safety meetings with employees and carry out regular demonstration of general safety with employees, to ensure that employees are aware of what actions to take during emergencies.
32. Fire drills will be held at least once every six months as per the Work Place (Minimum Health and Safety Requirements) Regulations, S.L.424.15. Drills will provide essential feedback on the effectiveness of the Emergency Response Plan training and highlight areas where further training is required.
33. Records of fire drills will be maintained as part of the Health and Safety documentation, and will include the following information:
- Identity of the person conducting the drill;

- Date and time of the drill;
  - Notification method used;
  - Number of staff members participating;
  - Number of occupants evacuated;
  - Any special conditions simulated;
  - Any problems encountered;
  - Weather conditions when occupants were evacuated; and
  - Time required to accomplish the complete evacuation.
34. Once the Scheme is fully operational as proposed, the Civil Protection Department will be invited to carry out familiarisation visits and carry out fire drills with employees (including those having special duties under this Plan).

## **Responsibilities**

35. The TCP or his representative will have overall responsibility for this Plan. His role is to:
- Develop and maintain written standard operating procedures for regular and silent hours;
  - Review and update this Plan as necessary;
  - Take security measures to protect the employees and the site;
  - Integrate this Plan with any existing emergency plan covering the site or work area;
  - Inform employees of the location of the emergency exits and evacuation routes;
  - Conduct fire drills and judge the effectiveness of the Plan;
  - Organise training for employees in emergency response;
  - Ensure that the fire fighting equipment or any other safety equipment is maintained, that records are kept, that fire extinguishers are stored appropriately, and that water levels in the reservoir are checked weekly;

and

- Ensure that the Scheme site meets Health and Safety Regulations.
36. During an emergency situation, the TCP (or another manager if the TCP is unavailable) is responsible to:
- Notify emergency service providers in the event of an emergency affecting the facility;
  - Decide whether the emergency requires evacuation of the site, whether full or partial;
  - Ensure that evacuation has commenced when initiated;
  - Direct the shutdown of any machines;
  - Supervise all efforts to control the fire and prevent its spread to other nearby areas, with the assistance of the emergency personnel; and
  - If the emergency involves the release of a toxic agent, take the necessary safety precautions.
37. One employee will be designated and trained as the evacuation coordinator, with another employee having the role of substitute coordinator. They will be responsible for:
- Providing guidance and instructions during an emergency on site;
  - Directing and assisting all employees and visitors during an evacuation, to ensure evacuation is carried out in a safe and orderly manner;
  - Knowing the area well in order to avoid potential hazards during evacuation;
  - Being aware of any employees who need extra assistance;
  - Teaching and implementing the buddy system, to facilitate the identification of any employees who have not evacuated the site;
  - Picking up the Log Book on the way out during evacuation;
  - Carrying out a roll call at the assembly point and ensuring that all employees and visitors are accounted for;
  - Issuing instructions to those at the assembly point;



- Informing first responders / emergency services whether all employees and visitors are accounted for, and of any known hazards at the site; and
  - Assisting the emergency responders if asked to.
38. One or more employees will be trained as fire marshals. Their role is to extinguish small and controllable fires, if safe to do so, while waiting for the emergency services to arrive.
39. One or more employees will be trained as a first aider.

### **Fire Response Procedure**

40. In the event of a fire, the following procedure must be followed, as appropriate depending on the nature and extent of the fire:
- Raise the alarm;
  - Evacuate and limit the spread of the fire (where possible);
  - Notify the emergency services; and
  - Extinguish the fire.

### **Raising the Alarm**

41. The person discovering the fire must immediately:
- Alert nearby workers / visitors; and
  - Notify their supervisor and management, via radios or verbally.
42. Management will decide whether to evacuate the site, activate the fire alarm, and call the emergency services, depending on the location and size of the fire.
43. Management will also determine whether the entire site or part of it should be evacuated, or whether it will be safer for the employees to remain indoors or in a safe pre-defined location.
44. The buildings and shed on site also will be equipped with smoke / fire detection units, which will be connected to an alarm system. Activation of the alarm will initiate the evacuation procedure.

45. The alarm can also be activated manually through one of a number of manual call points to be located around the site.
46. If an evacuation is initiated, management will also inform neighbouring companies of the emergency, so that they will also activate their internal emergency response plan if need be.
47. Key management personnel and important telephone numbers will be kept at the main office in order to facilitate and speed up the response. These include the site telephone number, and contact numbers for the following staff members:
  - Yard supervisor;
  - Fire marshal;
  - First aider/s;
  - Evacuation coordinator;
  - Health and Safety officer; and
  - TCP contact number after office hours.
48. The site telephone number as well as the after-hours TCP contact number will also be fixed to a notice at the main gate.

### **Evacuation and Limiting the Spread of the Fire**

49. The Scheme site will have two entry / exit gates, either of which can be used during an emergency evacuation. The site will also be equipped with a wind direction indicator such as a wind sock, to help the evacuation coordinator identify which emergency exit should be used.
50. The following signage will be installed to facilitate the safe evacuation of employees and visitors:
  - Signs marking the evacuation route; and
  - A sign marking the assembly point (shown in Figure 7) outside the premises.
51. When the alarm is sounded, all employees should follow these steps:
  - Stop working and make all equipment or machinery they are working with

safe, if possible. Critical equipment is to be shut down when possible;

- Proceed, in an orderly manner, to the nearest or available fire exit leading to the assembly point;
- Employees and site management should assist each other and ensure that all visitors or fellow workers follow them to the evacuation area;
- Before leaving their work station, employees should ensure that other workers working near them are aware of the situation;
- Before leaving their work station employees should also ensure that the area is checked and that no person is left in enclosed or confined spaces that could entrap them; and
- Once at the assembly point, employees are to wait for a roll call and further instructions from the designated evacuation coordinator.

52. The evacuation coordinator will carry out a roll call immediately once evacuation is complete, so as not to delay the rescue of any missing persons who might be trapped in the premises.

53. If any person is injured or contaminated, the Scheme's internal rescue and first aid operating procedure will be followed.

54. Only trained and designated fire marshals are to remain on site to tackle the fire. This is only applicable if the fire is perceived as small and controllable, and the fire marshal is not putting his / her life at risk to extinguish it. The fire marshal will attempt to extinguish the fire only if:

- The fire is small and is not spreading to other areas;
- Escaping the area is possible by backing up to the nearest exit; and
- The firefighting system is in working condition.

55. If safe to do so, a designated person will move any flammable materials (e.g. bales of tyres) in the vicinity of the fire away from the fire by means of a grab excavator, to avoid them catching fire.

56. If the fire is too large, the fire marshal will not attempt to extinguish it, but will evacuate the site. This principle also applies to the movement of flammable materials.

57. It is noted that the compartments of the sheds on site will have walls that are 60-minutes fire rated; this will help reduce the spread of a fire occurring in these areas.

### **Notifying Emergency Services**

58. Emergency services will be contacted by the TCP (or one of the other managers if the TCP is unavailable). The person making the call will:
- Give clear details about the situation, including the address, the nature and location of the fire;
  - Report on any casualties or persons that need to be rescued; and
  - Provide details on known hazards at the Scheme, such as flammable materials.
59. The relevant emergency telephone numbers for use in case of a fire are:
- Emergency services: 112
  - Civil Protection Department: 2393 0000
  - General hospital: 2545 0000 / 2545 4030 / 2545 4184
  - ERA: 2292 3500
  - Police headquarters: 2122 4001 / 9
60. For ease of reference, these emergency telephone numbers will be placed at call points, notice boards or in other locations where deemed necessary.
61. Emergency services will be notified even if the emergency can be contained by the Scheme's trained personnel.

### **Fire Fighting by Emergency Respondents**

62. When emergency respondents arrive at the site, the evacuation coordinator will inform them of any known hazards at the site, such as the location of tyres, flammable liquids, metals, fuel, oil and pressurised gas cylinders. The evacuation coordinator will also inform respondents of any missing or injured persons.

63. The Scheme site will be equipped with a number of portable fire extinguishers (water and foam) placed in stations at various locations around the site, depending on the type of fire load, and indicated by proper signage (Figure 8).
64. A dedicated firefighting reservoir with a capacity for 175 m<sup>3</sup> of water will be constructed. A fire pump will be connected to this reservoir, located away from any fire hazards and feeding into a ring main (Figure 9) that will be constructed around the site. The ring main will have strategically located double headed fire hydrant outlets conforming to CPD connections. The fire pump will be capable of delivering 3,000 L per minute at a pressure of 8 bar. As a temporary measure before the firefighting reservoir is constructed, a dedicated 5,000 L capacity water bowser, with pump and dispenser will be stored on site for use in the event of a fire.
65. The reservoir will hold not less than 175,000 L of water for use by the CPD. It will be filled by bowser and kept full for emergency purposes.
66. There will be two access gates for CPD vehicles. All roads inside the DDE Attard premises will be wide enough for CPD vehicles to navigate and operate from.
67. The site's wind direction indicator will also help respondents identify the best direction from which to tackle a fire.
68. Lithium batteries will be stored in a specialized container equipped with safety features such as a temperature sensor to trigger the fire extinguishing system, manual activation of the extinguishing system, a gas extinguishing system, and a water connection for flooding if necessary. Proper disposal of water used to extinguish potential fires is emphasized due to its contamination with harmful chemicals from the batteries. This meticulous process addresses fire safety concerns and ensures the secure handling of electric vehicle batteries within the facility.

#### **Collection of Used Extinguishant**

69. Used extinguishant will be collected through surface gutters, and treated in a silt-trap and oil-water interceptors before being received in an underground 245m<sup>3</sup> reservoir. Two interceptors will be installed, each covering

approximately half of the site catchment area; these will be placed side-by-side in the same location.

70. A hardstanding surface is also being installed throughout the entire site. This includes an underlying impermeable membrane and reinforced concrete layer to ensure impermeability.



Figure 7: Assembly point





The site plan illustrates the proposed development at SQAQ IL-FDAL IL-HADID. It features a central area divided into numbered plots (01-27) for different functions. Key elements include:

- Roads:** Private Access Road, TRIQ IL-BELT VALLETTA, and SQAQ IL-FDAL IL-HADID.
- Buildings and Structures:** Farmhouse (dated 1989), Composter Shed, Tyre Wash Facility, Weighbridge Office, Generator, and various storage areas.
- Infrastructure:** Sewage system manholes, foul water sewer, storm water catchpits, and fire hydrants.
- Landscaping:** Areas designated for soft landscaping with soil and olive/cypress/pine trees as approved in PA 1676/15.
- Other Features:** A reservoir below the main plot area, a composting shed, and a weigh bridge.

**LEGEND**

- BALING OF TYRES
- E.L.V. (VEHICLES AWAITING DISMANTLING)
- E.L.V. (EQUIPMENT FOR DEPOLUTION OF VEHICLES AND DISMANTLING)
- E.L.V. (STORAGE OF DISASSEMBLED PARTS)
- STAFF FACILITIES - OFFICE, TOILETS & CANTEEN
- DISMANTLING OF WHITE GOODS (COOKERS AND WASHING MACHINES)
- WIRE STRIPPING
- STORAGE OF SPARE PARTS (GENERAL)
- STORAGE OF PROCESSED WOOD
- SHREDDING/CRUSHING
- GARAGE FOR PARKING & MAINTENANCE OF YARD EQUIPMENT
- STORAGE OF TYRES
- STORAGE OF SCRAP METAL
- STORAGE OF WOOD
- STORAGE OF ALUMINIUM
- STORAGE OF PLASTIC
- STORAGE (TEMPORARY) OF SEALED CONTAINERS FOR ONWARD SHIPPING
- QUARANTINE
- PARKING AREA
- TEMPORARY STORAGE (INCLUDING TYRES)
- WEIGH BRIDGE
- COMPOSTER SHED
- TYRE WASH FACILITY
- WEIGHBRIDGE OFFICE
- GENERATOR
- 9m<sup>3</sup> FUEL STORAGE CONTAINER WITHIN 14m<sup>3</sup> BUND
- STORAGE OF COPPER

**FIRE SAFETY:**

- 9L FOAM PORTABLE FIRE EXTINGUISHER & 9L WATER PORTABLE FIRE EXTINGUISHER
- WALL HAVING 60 MINUTES FIRE RATING
- RING MAIN WITH FIRE HYDRANTS

Site to be equipped with fire hydrants, positioned in line with the requirements of BS:9990

Scale 1:500

0 10 20 30 40 50 60 70 80 90 100

SQAQ IL-FDAL IL-HADID

TRIQ IL-BELT VALLETTA

Assumed Public Road Sewer

Private Access Road

Composter Shed

Tyres

Reservoir Below

Farmhouse  
Dismantled Prior to 1989

Open Yard

Sheds

Staff Facilities

Road

Landscaped Area

Storm Water Flow

Storm Water Catchpit

Sewage System Manhole

Foul Water Sewer

Generator Exhaust Flue - 11.5M HIGH

Site AT SQAQ  
FDAL IL-HADID, LUQA

PREPARED  
BLOCK PLAN

Amended To  
APPROVED FA/5534/07  
AND FA/5176/11

Date: 14/01/2011

Scale: 1:500

Drawn By: [Signature]

CHECKED BY: [Signature]

DATE: 14/01/2011

PROJECT NO: [Number]

CLIENT: [Name]

DESIGNER: [Name]

ENGINEER: [Name]

ARCHITECT: [Name]

LANDSCAPE ARCHITECT: [Name]

STRUCTURAL ENGINEER: [Name]

Mechanical Engineer: [Name]

Electrical Engineer: [Name]

Water Engineer: [Name]

Environmental Engineer: [Name]

Health and Safety Officer: [Name]

Project Manager: [Name]

Client Representative: [Name]

Author: [Name]

Checker: [Name]

Approver: [Name]

Version: 1.0

Status: Approved

Next Review Date: 14/01/2012

Project Location: SQAQ IL-FDAL IL-HADID, LUQA

Project Description: Development of a waste management facility.

Project Reference: FA/5534/07 and FA/5176/11

Project Status: Approved

Project Owner: [Name]

Project Manager: [Name]

Project Engineer: [Name]

Project Architect: [Name]

Project Landscape Architect: [Name]

Project Structural Engineer: [Name]

Project Mechanical Engineer: [Name]

Project Electrical Engineer: [Name]

Project Water Engineer: [Name]

Project Environmental Engineer: [Name]

Project Health and Safety Officer: [Name]

Project Project Manager: [Name]

Project Client Representative: [Name]

Project Author: [Name]

Project Checker: [Name]

Project Approver: [Name]

Project Version: 1.0

Project Status: Approved

Project Next Review Date: 14/01/2012

Project Location: SQAQ IL-FDAL IL-HADID, LUQA

Project Description: Development of a waste management facility.

Project Reference: FA/5534/07 and FA/5176/11

Project Status: Approved

Project Owner: [Name]

Project Manager: [Name]

Project Engineer: [Name]

Project Architect: [Name]

Project Landscape Architect: [Name]

Project Structural Engineer: [Name]

Project Mechanical Engineer: [Name]

Project Electrical Engineer: [Name]

Project Water Engineer: [Name]

Project Environmental Engineer: [Name]

Project Health and Safety Officer: [Name]

Project Project Manager: [Name]

Project Client Representative: [Name]

Project Author: [Name]

Project Checker: [Name]

Project Approver: [Name]

Project Version: 1.0

Project Status: Approved

Project Next Review Date: 14/01/2012

Project Location: SQAQ IL-FDAL IL-HADID, LUQA

Project Description: Development of a waste management facility.

Project Reference: FA/5534/07 and FA/5176/11

Project Status: Approved

Project Owner: [Name]

Project Manager: [Name]

Project Engineer: [Name]

Project Architect: [Name]

Project Landscape Architect: [Name]

Project Structural Engineer: [Name]

Project Mechanical Engineer: [Name]

Project Electrical Engineer: [Name]

Project Water Engineer: [Name]

Project Environmental Engineer: [Name]

Project Health and Safety Officer: [Name]

Project Project Manager: [Name]

Project Client Representative: [Name]

Project Author: [Name]

Project Checker: [Name]

Project Approver: [Name]

Project Version: 1.0

Project Status: Approved

Project Next Review Date: 14/01/2012

Project Location: SQAQ IL-FDAL IL-HADID, LUQA

Project Description: Development of a waste management facility.

Project Reference: FA/5534/07 and FA/5176/11

Project Status: Approved

Project Owner: [Name]

Project Manager: [Name]

Project Engineer: [Name]

Project Architect: [Name]

Project Landscape Architect: [Name]

Project Structural Engineer: [Name]

Project Mechanical Engineer: [Name]

Project Electrical Engineer: [Name]

Project Water Engineer: [Name]

Project Environmental Engineer: [Name]

Project Health and Safety Officer: [Name]

Project Project Manager: [Name]

Project Client Representative: [Name]

Project Author: [Name]

Project Checker: [Name]

Project Approver: [Name]

Project Version: 1.0

Project Status: Approved

Project Next Review Date: 14/01/2012

Project Location: SQAQ IL-FDAL IL-HADID, LUQA

Project Description: Development of a waste management facility.

Project Reference: FA/5534/07 and FA/5176/11

Project Status: Approved

Project Owner: [Name]

Project Manager: [Name]

Project Engineer: [Name]

Project Architect: [Name]

Project Landscape Architect: [Name]

Project Structural Engineer: [Name]

Project Mechanical Engineer: [Name]

Project Electrical Engineer: [Name]

Project Water Engineer: [Name]

Project Environmental Engineer: [Name]

Project Health and Safety Officer: [Name]

Project Project Manager: [Name]

Project Client Representative: [Name]

Project Author: [Name]

Project Checker: [Name]

Project Approver: [Name]

Project Version: 1.0

Project Status: Approved

Project Next Review Date: 14/01/2012

Project Location: SQAQ IL-FDAL IL-HADID, LUQA

Project Description: Development of a waste management facility.

Project Reference: FA/5534/07 and FA/5176/11

Project Status: Approved

Project Owner: [Name]

Project Manager: [Name]

Project Engineer: [Name]

Project Architect: [Name]

Project Landscape Architect: [Name]

Project Structural Engineer: [Name]

Project Mechanical Engineer: [Name]

Project Electrical Engineer: [Name]

Project Water Engineer: [Name]

Project Environmental Engineer: [Name]

Project Health and Safety Officer: [Name]

Project Project Manager: [Name]

Project Client Representative: [Name]

Project Author: [Name]

Project Checker: [Name]

Project Approver: [Name]

Project Version: 1.0

Project Status: Approved

Project Next Review Date: 14/01/2012

Project Location: SQAQ IL-FDAL IL-HADID, LUQA

Project Description: Development of a waste management facility.

Project Reference: FA/5534/07 and FA/5176/11

Project Status: Approved

Project Owner: [Name]

Project Manager: [Name]

Project Engineer: [Name]

Project Architect: [Name]

Project Landscape Architect: [Name]

Project Structural Engineer: [Name]

Project Mechanical Engineer: [Name]

Project Electrical Engineer: [Name]

Project Water Engineer: [Name]

Project Environmental Engineer: [Name]

Project Health and Safety Officer: [Name]

Project Project Manager: [Name]

Project Client Representative: [Name]

Project Author: [Name]

Project Checker: [Name]

Project Approver: [Name]

Project Version: 1.0

Project Status: Approved

Project Next Review Date: 14/01/2012

Project Location: SQAQ IL-FDAL IL-HADID, LUQA

Project Description: Development of a waste management facility.

Project Reference: FA/5534/07 and FA/5176/11

Project Status: Approved

Project Owner: [Name]

Project Manager: [Name]

Project Engineer: [Name]

Project Architect: [Name]

Project Landscape Architect: [Name]

Project Structural Engineer: [Name]

Project Mechanical Engineer: [Name]

Project Electrical Engineer: [Name]

Project Water Engineer: [Name]

Project Environmental Engineer: [Name]

Project Health and Safety Officer: [Name]

Project Project Manager: [Name]

Project Client Representative: [Name]

Project Author: [Name]

Project Checker: [Name]

Project Approver: [Name]

Project Version: 1.0

Project Status: Approved

Project Next Review Date: 14/01/2012

Project Location: SQAQ IL-FDAL IL-HADID, LUQA

Project Description: Development of a waste management facility.

Project Reference: FA/5534/07 and FA/5176/11

Project Status: Approved

Project Owner: [Name]

Project Manager: [Name]

Project Engineer: [Name]

Project Architect: [Name]

Project Landscape Architect: [Name]

Project Structural Engineer: [Name]

Project Mechanical Engineer: [Name]

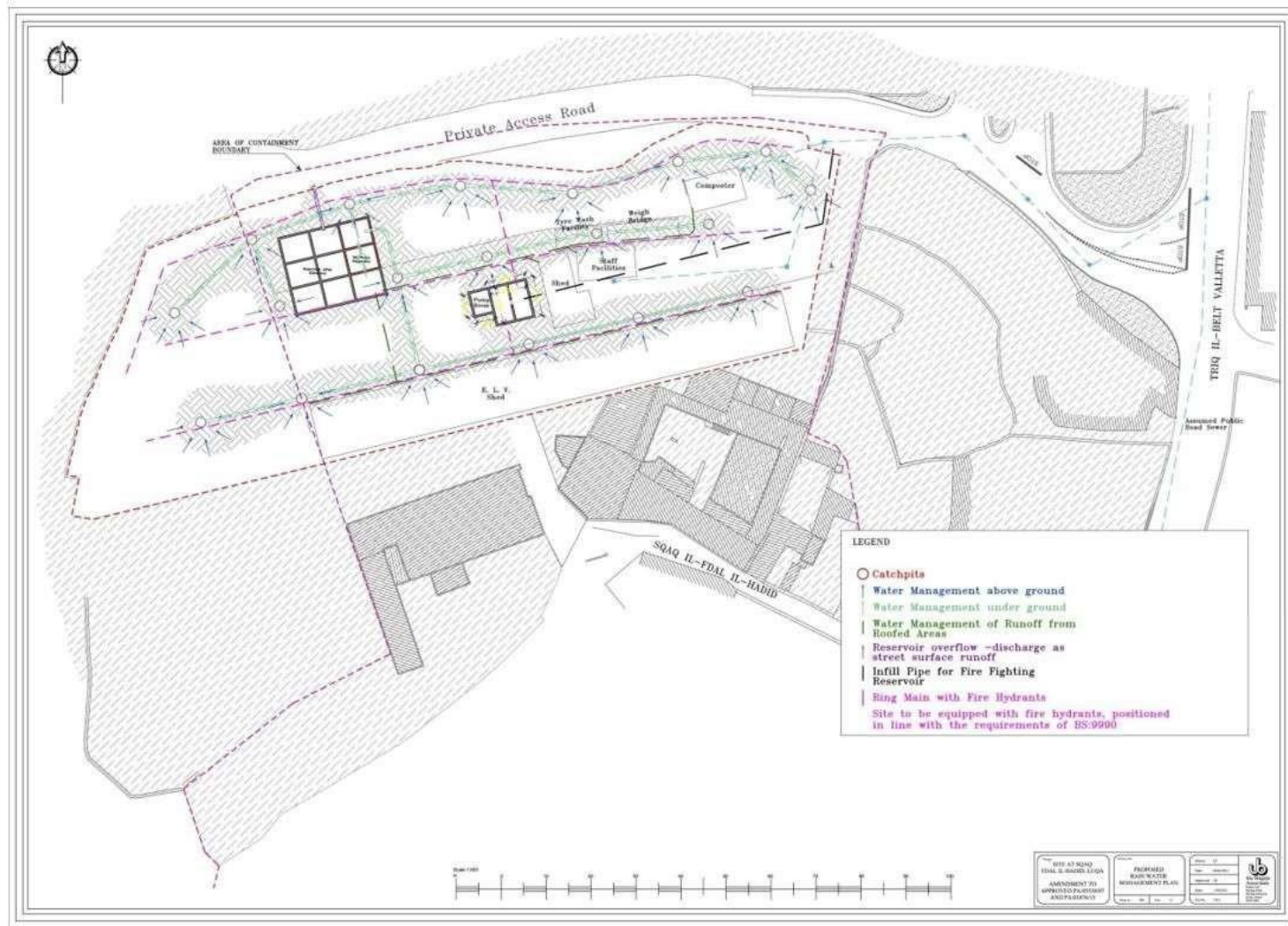
Project Electrical Engineer: [Name]

Project Water Engineer: [Name]

Project Environmental Engineer: [Name]



Figure 9: Ring main connections to firefighting reservoir



(The ring main and its connections to the firefighting reservoir are shown in pink in the above drawing).

## **Annex 5: Spill Prevention and Response Plan**

## Spill Prevention and Response Plan

### Spill Risks

1. Various liquid hazardous substances and wastes are stored and used at DDE Attard Ltd. Examples include:
  - Diesel stored in the diesel tank and the generator day tank;
  - Containerised liquid waste; and
  - Waste generated from vehicle depollution, such as oils, coolants, and batteries containing acid.
2. Spillages may arise from accidental damage / wear and tear of a container or pipework, tipping over of a container, or due to poor operational practices (such as careless dispensing of fuel, or storage of hazardous materials outside designated areas). Leaks may also arise from the equipment and vehicles used on site.
3. If hazardous materials / waste are spilled, without proper safeguards they can contaminate the land and groundwater in the surroundings.

### Spill Precautions

4. The site at DDE Attard Ltd is being upgraded with the installation of an impermeable surface, a system of gutters in the outside areas, and oil– water interceptors to collect oily spills; an engineer’s report on the interceptors is included in Volume 3. Any water–based spills are collected in the reservoir.
5. Additionally, the diesel tank and the generator day tank include integrated containment, and the depollution equipment includes containers built into the system to collect the fluids removed from the ELV, and includes underlying containment.
6. The following procedural precautions should also be followed to minimise the risk of a spill:
  - Store all other liquid hazardous substances and waste indoors (in a contained area or using temporary containment), in labelled and closed containers;
  - Use drip trays when dispensing fuel or filling up the diesel tank;
  - Inspect containers / drums containing liquid hazardous substances / waste according to the maintenance schedule, and repair / repackage as necessary;
  - Inspect the site surfacing according to the maintenance programme and carry out repairs as required; and
  - Inspect the gutters, silt trap and interceptor according to the maintenance programme and clean up as necessary.
7. Any minor drips, for example from vehicles, are to be seen to quickly before they increase.
8. Staff will also receive training on spill prevention and response to minimise the likelihood of a spill, and the environmental consequences of a spill if it occurs.

### Spill Kits

9. Two sets of spill kits are available on site:
  - A sawdust spill kit is stored next to the diesel tank and is intended to service any spills arising from diesel tank and leaks from vehicles, equipment and maintenance; and
  - A commercial spill kit that includes absorbent pads and booms is stored in the shed and is aimed at servicing any spills in the shed (including spills from the ELV depollution facility, and spills of hazardous wastes) and spills from containerized waste.

### Spill Response Procedure

10. In the event of a spill being detected, the following procedure must be followed. This is based on the 3C programme, i.e.:
  - Control the spill;
  - Contain the spill; and

- Clean up the spill.

### **Control the Spill**

11. Attempt to identify the nature (e.g. fuel, coolant) and source of the spill (e.g. a damaged drum, a container that has tipped over).
12. If you can identify the source of the spill and can control the flow of the material being spilled, do so quickly (e.g. put a drip tray beneath the container). The aim of this step is to stop any further release of the substance.

### **Contain the Spill**

13. The aim of this step is to avoid the further spread of spilled material.
14. For spills of diesel, or leaks from vehicles and equipment, the sawdust spill kit is to be used. First place the sawdust around the spill and then place sawdust on top of the spill, allowing it to absorb the spill material.
15. For spills in the shed and from containerised waste, absorbent pads and booms are to be used. Use the socks to contain the spill, by placing one or more socks around the spill as necessary. Then place the absorbent pads on top of the spill to absorb it.

### **Clean up the Spill**

16. Collect and place the used sawdust / absorbent pads in a heavy-duty plastic disposal bag, and close the bag. Ensure no visible residue is left on the ground.
17. Once you are certain the source is no longer leaking, collect and place the used socks into a separate plastic disposal bag, and close the bag.

### **After the Spill**

18. The used absorbent pads / sawdust are to be considered hazardous waste (EWC 15 02 02\*) and disposed of at a facility licensed to receive such waste (such as the Marsa Thermal Treatment Facility or Waste Oils Co. Ltd). The consignment note procedure for transfer of hazardous waste is to be followed.
19. If the socks are heavily contaminated they are also to be disposed of as hazardous waste.
20. Any use of spill kit contents is to be reported to the office administrator, who will make arrangements for purchasing material to replenish the spill kit as necessary, in consultation with the Managing Director.
21. The oil-water separators are to be inspected following any large oily spill that reaches the separator, to establish whether they need to be emptied. The underground reservoir will be emptied following any large water-based spill that reaches the reservoir.
22. All spills will be recorded in the site diary. Significant spills will also be reported to ERA.

## **Annex 6: Engineer Report**

31<sup>st</sup> August 2023

Civil Protection Department

Dear Sir,

**ASSESSMENT REPORT FOR SAFE STORAGE OF END OF LIFE ELECTRIC VEHICLES AND THEIR  
RESPECTIVE PARTS**

Site: Don Kotra, Sqaq il-Fdal tal-Hadid, Luqa  
Our Ref: I/0433  
PA Ref: PA/3140/23

**1.0 SCOPE**

This report describes the proposed procedure for the safe storage of Electric Vehicles that have reached their end of life at the waste facility located at Don Kotra, Sqaq il-Fdal tal-Hadid, Luqa.

**2.0 REFERENCES**

- Institute of Fire Engineers, IFE Blog – Tackling Fires in Electric Vehicles, September 2021.
- Fire Safety Research Institute, Fire Safety of Batteries and Electric Vehicles, April 2023

**3.0 DESCRIPTION OF PROPERTY**

The development consists of the upgrading of the waste facility in accordance to the IPPC permit occupying a footprint of around 8,000m<sup>2</sup>. The site has an internal private road with a number of waste assigned locations within a 800 sqm shed, designed to cater for the various waste streams. These include:

- E.L.V. (storage, dismantling, shredding, etc)
- Storage of tyres
- Metal Scrap processing and export



- Storage area of white goods and aluminium
- Staff facilities and parking

The site is also equipped with two reservoirs, one envisaged for firefighting use and the other one for second class water use. The second-class water reservoir shall be mainly filled with rain water catchment from the whole site. In view of the presence of oils, the catchment passes through a silt trap and oil-water interceptor to remove contaminants prior to storage in the reservoir.

Access to the site is possible through two exits, one entrance is from a public road while the second leading to a private access road which discharges onto Triq il-Belt Valletta, Luqa.

#### **4.0 FIRE SAFETY CONSIDERATIONS FOR ELECTRIC VEHICLES**

Electric vehicles are mainly powered by a rechargeable lithium-ion battery, which is the part of the vehicles that is most prone to fires. In general, these vehicles are quite safe but become highly susceptible to fire when the battery is damaged either due to elevated temperatures or by some form of mechanical impact.

Traditional fire suppression approaches are not as effective on electric vehicle fires as they are with internal combustion engine vehicles. The major challenges are that electric vehicle fires require a significant amount of water and once the fire has been extinguished, the problem remains that the battery in the electric vehicle fires can reignite, even multiple times, after the initial event. This makes disposal and storage of a fire-damaged vehicle a challenge.

The client has contacted their ELV depollution German equipment supplier and has suggested to utilise a dismantling procedure followed in Germany and Austria, as described in the following paragraphs.

#### **5.0 PROPOSAL FOR SAFE STORAGE ELECTRIC VEHICLES**

In view of the considerations mentioned above proper disposal and storage of electrical vehicles is crucial in minimizing fires in a waste facility that includes ELV processing. In order to minimise the volume required for safe storage of these vehicles and have a more controlled environment, it is proposed that the electrical vehicle's battery is dismantled/removed upon entry into the facility and therefore handled separately from the rest of the vehicle. Once the vehicle is dismantled, the battery needs to be treated as listed below while the vehicle can be treated like a normal vehicle.





Since the battery can be susceptible to spontaneous ignition as described above, upon initial dismantling, the batteries need to be stored in a quarantine container as shown in the following picture:



Such a container has the following facilities that address fire safety considerations:

1. Temperature sensor for triggering fire extinguishant system
2. Manual triggering of fire extinguishant system
3. Gast extinguishing system
4. Water connection for flooding if necessary

In the event that water is used to extinguish any fire resulting from a car battery, it is very important that the resultant water is properly disposed of since it would be contaminated with harmful chemicals.





## 6.0 CONCLUSIONS

If the provisions noted above are implemented, it can be safely concluded that fires resulting from electrical vehicle batteries can be minimized and controlled. It is important that the battery is separated from the vehicle such that it can be further protected and placed in a quarantine zone where further fire protection measures are in place.

Kind Regards,

Ing. Liana Zerafa  
Warrant No. 1056

## **Annex 7: CPD Communication**

Gabriella Gauci

---

From: Pisani Anthony at CPD <anthony.pisani@gov.mt>  
Sent: Friday, 13 October 2023 18:37  
To: Liana Zerafa  
Cc: Coleiro Peter Paul at CPD; Luigi Fenech; Andre Camilleri; Management - DDE Attard; Info - DDE Attard  
Subject: RE: Fire hydrant system design at Luqa Scrapyard, PA/04172/16

Dear Liana,

Following to this morning telephone conversation, I am satisfied with the arrangements made for the BEV batteries storage facilities, it is envisaged that the quantity that will be at the facility is minimal, and the maximum storage capacity of the container, that of around 2-3 car battery capacity is not by anyway exceeded. The dedicate container should be segregate preferable at the gate entrance in order to eliminate the chances of fire spreading into the adjoining combustible materials, still taking into consideration an alternative means of escape for the employees working in the yard.

Thanks

Anthony Pisani  
Chief Assistance Rescue Officer  
Civil Protection Department

t +356 23931132 e [anthony.pisani@gov.mt](mailto:anthony.pisani@gov.mt)  
[www.homeaffairs.gov.mt](http://www.homeaffairs.gov.mt) | [www.publicservice.gov.mt](http://www.publicservice.gov.mt) | [fb.com/servizzpubbliku](https://fb.com/servizzpubbliku)

*Kindly consider your environmental responsibility before printing this e-mail*



MINISTRY FOR HOME AFFAIRS,  
SECURITY, REFORMS AND EQUALITY  
CIVIL PROTECTION, TA' KANDJA, LIMITI TAS-  
SIGGIEWI, MALTA

---

**From:** Liana Zerafa <liana@ipsum-engineering.com>  
**Sent:** Friday, 06 October 2023 15:54  
**To:** Pisani Anthony at CPD <anthony.pisani@gov.mt>  
**Cc:** Bezzina Natalino at CPD <natalino.bezzina@gov.mt>; Luigi Fenech <l.fenech@jbamalta.com>; Andre Camilleri <andre.camilleri@ddeattard.com>; Management - DDE Attard <management@ddeattardmalta.onmicrosoft.com>; Info - DDE Attard <info@ddeattardmalta.onmicrosoft.com>  
**Subject:** Re: Fire hydrant system design at Luqa Scrapyard, PA/04172/16

**CAUTION:** This email originated from OUTSIDE the Government Email Infrastructure. DO NOT CLICK LINKS or OPEN attachments unless you recognise the sender and know the content is safe.

Hi Anthony,

Just sending a quick reminder for the below please, in case you are back from abroad.

Regards  
Liana

On Tue, 26 Sep 2023, 21:22 Pisani Anthony at CPD, <[anthony.pisani@gov.mt](mailto:anthony.pisani@gov.mt)> wrote:

Dear Ing L. Zerafa,

At the moment i am duty abroad, as soon as return. I will make contact with you to discuss this issue in detail.

Thanks

Tony

Sent from [Outlook for Android](#)

---

**From:** Liana Zerafa <[liana@ipsum-engineering.com](mailto:liana@ipsum-engineering.com)>

**Sent:** Tuesday, September 26, 2023 8:59:33 PM

**To:** Pisani Anthony at CPD <[anthony.pisani@gov.mt](mailto:anthony.pisani@gov.mt)>

**Cc:** Bezzina Natalino at CPD <[natalino.bezzina@gov.mt](mailto:natalino.bezzina@gov.mt)>; Luigi Fenech <[l.fenech@jbamalta.com](mailto:l.fenech@jbamalta.com)>; Andre Camilleri <[andre.camilleri@ddeattard.com](mailto:andre.camilleri@ddeattard.com)>; Management - DDE Attard <[management@ddeattardmalta.onmicrosoft.com](mailto:management@ddeattardmalta.onmicrosoft.com)>; Info - DDE Attard <[info@ddeattardmalta.onmicrosoft.com](mailto:info@ddeattardmalta.onmicrosoft.com)>

**Subject:** Re: Fire hydrant system design at Luqa Scrapyard, PA/04172/16

**CAUTION:** This email originated from OUTSIDE the Government Email Infrastructure. DO NOT CLICK LINKS or OPEN attachments unless you recognise the sender and know the content is safe.

Dear Mr. Pisani,

Thanks for your email. Please find below our feedback:

As regards the storage facilities, it is envisaged that the vehicles will currently range 2 to 4 a month maximum since most vehicles are either having their batteries replaced or if involved in a accident they are repaired at the agents directly. Only the vehicles that are written off are being scraped. Therefore the quantity that will be at the facility is minimal. As regards the container, these should store around 2-3 car battery capacity. However, each brand has there own battery sizes and power therefore the exact number can't be determined.

With regards to H&S there are specialised tools that will be purchased by the client. These were part of the catalogue for the process to take place.

The container has in built facilities that includes an extinguishant system to control the fire. This is triggered as soon as a temperature rise is sensed in the container. Moreover, there is also the option for flooding the container.

Please let us know if the above meet your requirements or if you have further comments.

Regards

Liana

**ING. LIANA ZERAFA B.ENG.(HONS), M.SC.**

BUILDING SERVICES ENGINEER

20, Triq il-Midra, H'Attard ATD1890 Malta

M: **+356 9946 7273**

E: [liana@ipsum-engineering.com](mailto:liana@ipsum-engineering.com)



E-mail Disclaimer: The information in this email and any of its attachments is strictly confidential and intended solely for the person or organisation to whom it is addressed. Access to this email by anyone else is unauthorised. If you are not the intended recipient, you must not copy or distribute it or take action in reliance on it. If you have received this email in error, please notify the sender as soon as possible. Communication via email over the internet is not secure and messages may be read, manipulated or otherwise compromised by third parties. In this eventuality, IPSUM-Engineering does not accept any responsibility.

On Thu, 7 Sept 2023 at 11:27, Pisani Anthony at CPD <[anthony.pisani@gov.mt](mailto:anthony.pisani@gov.mt)> wrote:

Dear Liana,

In principle I agreed with the proposal, first of all it is very important that whoever is going to be working in dismantling the BEV battery off the vehicle will be adequately protected with full PPE according H&S regulations in this matter. Secondly, how many BEV batteries can be stored at one time. The reason is that since probably your client will be the only company that it going to have this facility, what is the number of BEV batteries that can be stored at one time before they are exported through proper channels?

As you may be aware after an BEV have ignited there is the large possibility that it reignites again, therefore, if the battery reignites again when it is store in this purposely built container, what is going to happen to the other batteries stored in the same container, as for sure a thermal runaway will take place, creating a larger problem for the emergency services.

Thanks

**Anthony Pisani**  
Chief Assistance Rescue Officer  
Civil Protection Department

t +356 23931132 e [anthony.pisani@gov.mt](mailto:anthony.pisani@gov.mt)  
[www.homeaffairs.gov.mt](http://www.homeaffairs.gov.mt) | [www.publicservice.gov.mt](http://www.publicservice.gov.mt) | [fb.com/servizzpubbliku](https://fb.com/servizzpubbliku)

*Kindly consider your environmental responsibility before printing this e-mail*

MINISTRY FOR HOME AFFAIRS,  
SECURITY, REFORMS AND EQUALITY  
CIVIL PROTECTION, TA' KANDJA, LIMITI TAS-  
SIGGIEWI, MALTA

---

**From:** Liana Zerafa <[liana@ipsum-engineering.com](mailto:liana@ipsum-engineering.com)>  
**Sent:** Tuesday, 05 September 2023 16:07  
**To:** Pisani Anthony at CPD <[anthony.pisani@gov.mt](mailto:anthony.pisani@gov.mt)>  
**Cc:** Bezzina Natalino at CPD <[natalino.bezzina@gov.mt](mailto:natalino.bezzina@gov.mt)>; Luigi Fenech <[l.fenech@jbamalta.com](mailto:l.fenech@jbamalta.com)>; Andre Camilleri <[andre.camilleri@ddeattard.com](mailto:andre.camilleri@ddeattard.com)>; Management - DDE Attard <[management@ddeattardmalta.onmicrosoft.com](mailto:management@ddeattardmalta.onmicrosoft.com)>; Info - DDE Attard <[info@ddeattardmalta.onmicrosoft.com](mailto:info@ddeattardmalta.onmicrosoft.com)>  
**Subject:** Re: Fire hydrant system design at Luqa Scrapyard, PA/04172/16

**CAUTION:** This email originated from OUTSIDE the Government Email Infrastructure. DO NOT CLICK LINKS or OPEN attachments unless you recognise the sender and know the content is safe.

Dear Mr Pisani, Mr Bezzina,

Further to the correspondence below and other correspondence relating to ERA permit variation submission that took place earlier last year, CPD had requested additional fire preventative measures for Electric Vehicles (EV).

Could you kindly refer to the attached document where the procedure that will be adopted by the operator is detailed addressing the major concerns relating to EV vehicles. Please let us know if you have any further concerns and if not, could you kindly issue your clearance .

Looking forward to your feedback.

Regards

Liana

**ING. LIANA ZERAFA B.ENG.(HONS), M.SC.**  
BUILDING SERVICES ENGINEER

20, Triq il-Midra, H'Attard ATD1890 Malta

M: **+356 9946 7273**

E: **[liana@ipsum-engineering.com](mailto:liana@ipsum-engineering.com)**

E-mail Disclaimer: The information in this email and any of its attachments is strictly confidential and intended solely for the person or organisation to whom it is addressed. Access to this email by anyone else is unauthorised. If you are not the intended recipient, you must not copy or distribute it or take action in reliance on it. If you have received this email in error, please notify the sender as soon as possible. Communication via email over the internet is not secure and messages may be read, manipulated or otherwise compromised by third parties. In this eventuality, IPSUM-Engineering does not accept any responsibility.

On Tue, 7 Jun 2022 at 09:28, Pisani Anthony at CPD <[anthony.pisani@gov.mt](mailto:anthony.pisani@gov.mt)> wrote:

Dear All,

I have no further comments to add from this end.

Thanks

**Anthony Pisani**

Chief Assistance Rescue Officer  
Civil Protection Department

t +356 23931132 e [anthony.pisani@gov.mt](mailto:anthony.pisani@gov.mt)  
[www.homeaffairs.gov.mt](http://www.homeaffairs.gov.mt) | [www.publicservice.gov.mt](http://www.publicservice.gov.mt) | [fb.com/servizzpubbliku](https://fb.com/servizzpubbliku)

*Kindly consider your environmental responsibility before printing this e-mail*

MINISTRY FOR HOME AFFAIRS,  
SECURITY, REFORMS AND EQUALITY  
CIVIL PROTECTION, TA' KANDJA, LIMITI TAS-  
SIGGIEWI, MALTA

---

**From:** Liana Zerafa <[liana@ipsum-engineering.com](mailto:liana@ipsum-engineering.com)>

**Sent:** Tuesday, 07 June 2022 06:12

**To:** Bezzina Natalino at CPD <[natalino.bezzina@gov.mt](mailto:natalino.bezzina@gov.mt)>

**Cc:** Pisani Anthony at CPD <[anthony.pisani@gov.mt](mailto:anthony.pisani@gov.mt)>; Luigi Fenech <[l.fenech@jbamalta.com](mailto:l.fenech@jbamalta.com)>; Andre Camilleri <[andre.camilleri@ddeattard.com](mailto:andre.camilleri@ddeattard.com)>; Mark Cilia <[mcilia@tfork.com](mailto:mcilia@tfork.com)>

**Subject:** Re: Fire hydrant system design at Luqa Scrapyard, PA/04172/16

**CAUTION:** This email originated from OUTSIDE the Government Email Infrastructure. DO NOT CLICK LINKS or OPEN attachments unless you recognise the sender and know the content is safe.

Dear Mr. Bezzina,

Further to my email below, I have discussed the matter with the architect, and we confirm that a reservoir of 240m3 will be provided. Please confirm the other items so that the IPCC process can be finalised accordingly.

Regards

Liana

**ING. LIANA ZERAFA B.ENG.(HONS), M.SC.**  
BUILDING SERVICES ENGINEER

27, Triq Antonio Bosio, Balzan BZN 1143, Malta

M: **+356 9946 7273**

E: [liana@ipsum-engineering.com](mailto:liana@ipsum-engineering.com)

E-mail Disclaimer: The information in this email and any of its attachments is strictly confidential and intended solely for the person or organisation to whom it is addressed. Access to this email by anyone else is unauthorised. If you are not the intended recipient, you must not copy or distribute it or take action in reliance on it. If you have received this email in error, please notify the sender as soon as possible. Communication via email over the internet is not secure and messages may be read, manipulated or otherwise compromised by third parties. In this eventuality, IPSUM-Engineering does not accept any responsibility.

On Sat, 4 Jun 2022 at 07:37, Liana Zerafa <[liana@ipsum-engineering.com](mailto:liana@ipsum-engineering.com)> wrote:

Dear Mr. Bezzina,

Thanks a lot for your feedback. Please find our replies below in red.

Regards



Liana

**ING. LIANA ZERAFA B.ENG.(HONS), M.SC.**  
BUILDING SERVICES ENGINEER

27, Triq Antonio Bosio, Balzan BZN 1143, Malta

M: +356 9946 7273

E: liana@ipsum-engineering.com

E-mail Disclaimer: The information in this email and any of its attachments is strictly confidential and intended solely for the person or organisation to whom it is addressed. Access to this email by anyone else is unauthorised. If you are not the intended recipient, you must not copy or distribute it or take action in reliance on it. If you have received this email in error, please notify the sender as soon as possible. Communication via email over the internet is not secure and messages may be read, manipulated or otherwise compromised by third parties. In this eventuality, IPSUM-Engineering does not accept any responsibility.

On Fri, 3 Jun 2022 at 12:59, Bezzina Natalino at CPD <[natalino.bezzina@gov.mt](mailto:natalino.bezzina@gov.mt)> wrote:

Dear Ing Zerafa,

Reference is made to the report received. Kindly find hereunder the recommendations pls.

1. the reservoir capacity should be enlarged to provide at least 2hrs of firefighting water running the suppression system; **based on a flow of 2000l/min pump duty, the capacity would equate to 240m3. I will check with the architect if it is possible to increase since construction is already underway and I believe that they have based construction based on the PA permit approval and CPD endorsement of Fire report which stipulated 175m3. If not possible at this stage, can you please confirm the 175m3?**
2. a hydrant connected to the pump and the fire service inlet breeching should be installed at the entrance gate; **there is a hydrant installed as soon as you go in from the gate (the second one not the first one). Moreover, we the inlet breeches have been proposed to be installed with the fire pump room facade since the pump room is accessed from the street, which is also in close proximity to the gate where the hydrant is installed. please confirm if they are acceptable.**

3. A. the inlet breeching should be able to supply the system, however excluding the pump. This will be used should the pump fails. **this is possible through the inlet breech named "Fire Brigade Inlet for Fire Pump Bypass" - please confirm if this is what you are referring to**
- B. Thus, you will have the third connection to fill the reservoir next to connections addressed in A. **Are you referring to the connection noted as "reservoir fill up"?**
4. the suction pipe work may be removed as it will never be used by the CPD; **noted**

Hope this helps.

Regards

Natalino Bezzina

Chief Assistance and Rescue Officer  
Civil Protection Department

t +356 23931133 e [natalino.bezzina@gov.mt](mailto:natalino.bezzina@gov.mt)  
[www.homeaffairs.gov.mt](http://www.homeaffairs.gov.mt) | [www.publicservice.gov.mt](http://www.publicservice.gov.mt) | [fb.com/servizzpubbliku](https://fb.com/servizzpubbliku)

*Kindly consider your environmental responsibility before printing this e-mail*

MINISTRY FOR HOME AFFAIRS,  
SECURITY, REFORMS AND EQUALITY

CIVIL PROTECTION, TA' KANDJA, LIMITI TAS-  
SIGGIEWI, MALTA

---

**From:** Liana Zerafa <[liana@ipsum-engineering.com](mailto:liana@ipsum-engineering.com)>

**Sent:** Sunday, 29 May 2022 10:42

**To:** Bezzina Natalino at CPD <[natalino.bezzina@gov.mt](mailto:natalino.bezzina@gov.mt)>

**Cc:** Luigi Fenech <[l.fenech@jbamalta.com](mailto:l.fenech@jbamalta.com)>; Pisani Anthony at CPD <[anthony.pisani@gov.mt](mailto:anthony.pisani@gov.mt)>; Andre Camilleri <[andre.camilleri@ddeattard.com](mailto:andre.camilleri@ddeattard.com)>; Mark Cilia <[mcilia@tfork.com](mailto:mcilia@tfork.com)>

**Subject:** Re: Fire hydrant system design at Luqa Scrapyard, PA/04172/16

**CAUTION:** This email originated from OUTSIDE the Government Email Infrastructure. DO NOT CLICK LINKS or OPEN attachments unless you recognise the sender and know the content is safe.

Dear Mr. Bezzina,

Reference is made to the correspondence below that dates back to October of last year. We have completed the design, based on the below as per attached. It appears that the IPCC have not received your clearance on the matter. Could you kindly review and let us have your feedback? it might be easier to hold a meeting between all the parties copied in this email so that we may be able to finalise accordingly.

Appreciate your earliest response.

Regards

Liana

**ING. LIANA ZERAFA B.ENG.(HONS), M.SC.**  
BUILDING SERVICES ENGINEER

27, Triq Antonio Bosio, Balzan BZN 1143, Malta

M: +356 9946 7273

E: [liana@ipsum-engineering.com](mailto:liana@ipsum-engineering.com)

E-mail Disclaimer: The information in this email and any of its attachments is strictly confidential and intended solely for the person or organisation to whom it is addressed. Access to this email by anyone else is unauthorised. If you are not the intended recipient, you must not copy or distribute it or take action in reliance on it. If you have received this email in error, please notify the sender as soon as possible. Communication via email over the internet is not secure and messages may be read, manipulated or otherwise compromised by third parties. In this eventuality, IPSUM-Engineering does not accept any responsibility.

On Wed, 20 Oct 2021 at 14:42, Bezzina Natalino at CPD <[natalino.bezzina@gov.mt](mailto:natalino.bezzina@gov.mt)> wrote:

Dear Ing Zerafa,

With reference to the scrap yard in caption, the CPD recommend that hydraulic oscillating monitors are installed on poles at strategic locations and water throw overlapping each other. System will be manual, however flame detectors and beams will be installed with the control panel that immediately alarm the occupants and the fire service for immediate actions. Otherwise the system will operate automatically however this will decrease the pressure on the flow rendering inefficient firefighting unless the fire pump is upgraded.

Private fire hydrants shall be installed in strategic locations however within the proposed buffers.

Dedicated firefighting reservoir capacity may need to be increased to sustain the demand.

Inlet breechings are required in a way to over ride the pump in case a failure is experience.

You may wish to draw up the plan and discuss further with my office pls.

Hope this helps.

Regards

**Natalino Bezzina**

Chief Assistance and Rescue Officer.  
Civil Protection Department

t +356 23930000 m 7942 3133 e [natalino.bezzina@gov.mt](mailto:natalino.bezzina@gov.mt)  
[www.homeaffairs.gov.mt](http://www.homeaffairs.gov.mt) | [www.publicservice.gov.mt](http://www.publicservice.gov.mt)

*Kindly consider your environmental responsibility before printing this e-mail*

MINISTRY FOR HOME AFFAIRS  
NATIONAL SECURITY AND LAW ENFORCEMENT

CIVIL PROTECTION - TA' KANDJA, TA' KANDJA, LIMITI  
TAS-  
SIGGIEWI, MALTA

---

**From:** Liana Zerafa <[liana@ipsum-engineering.com](mailto:liana@ipsum-engineering.com)>  
**Sent:** Monday, 27 September 2021 15:00  
**To:** Bezzina Natalino at CPD <[natalino.bezzina@gov.mt](mailto:natalino.bezzina@gov.mt)>

Cc: Luigi Fenech <[l.fenech@jbamalta.com](mailto:l.fenech@jbamalta.com)>

Subject: Fwd: Fire hydrant system design at Luqa Scrapyard, PA/04172/16

**CAUTION:** This email originated from OUTSIDE the Government Email Infrastructure. DO NOT CLICK LINKS or OPEN attachments unless you recognise the sender and know the content is safe.

Dear Mr. Bezzina,

Kind reminder for the below email please.

Regards

Liana

**ING. LIANA ZERAFA B.ENG.(HONS), M.SC.**  
BUILDING SERVICES ENGINEER

2, Triq Tommaso Dingli, B'Kara, BKR 1692, Malta

M: **+356 9946 7273**

E: [liana@ipsum-engineering.com](mailto:liana@ipsum-engineering.com)

E-mail Disclaimer: The information in this email and any of its attachments is strictly confidential and intended solely for the person or organisation to whom it is addressed. Access to this email by anyone else is unauthorised. If you are not the intended recipient, you must not copy or distribute it or take action in reliance on it. If you have received this email in error, please notify the sender as soon as possible. Communication via email over the internet is not secure and messages may be read, manipulated or otherwise compromised by third parties. In this eventuality, IPSUM-Engineering does not accept any responsibility.

----- Forwarded message -----

From: **Liana Zerafa** <[liana@ipsum-engineering.com](mailto:liana@ipsum-engineering.com)>

Date: Sun, 19 Sept 2021 at 17:13

Subject: Fire hydrant system design at Luqa Scrapyard, PA/04172/16

To: Bezzina Natalino at CPD <[natalino.bezzina@gov.mt](mailto:natalino.bezzina@gov.mt)>

Cc: Luigi Fenech <[l.fenech@jbamalta.com](mailto:l.fenech@jbamalta.com)>

Dear Mr. Bezzina,

Reference is made to the Fire Safety Report in relation to the scrapyard located at Site at Don Kotra, Sqaq Vjal il-Hadid, Luqa and bearing PA reference PA/04172/16 which required a pumped fire hydrant system to be installed within the premises.

We are currently in the design process of this system and since this design is subject to final approval of the CPD, could you kindly confirm that the following design parameters are in line with CPD requirements:

1. Reservoir volume 175m<sup>3</sup>
2. Fire pump duty at 1,500l/min at 6 bar
3. Hydrant pillars positioned at a max of 90m apart

Moreover, could you kindly indicate if you require any specific connections in the pump room, such as inlet breeches, etc?

Your co-operation is appreciated and should you require any further information, do not hesitate to contact me.

Regards

Liana

## **Annex 8: TECHNICAL DOCUMENT OF THE LITHIUM BATTERY CONTAINER**

# Technical documentation



## QUARANTINE BOX "Cool Maxx"



## **TABLE OF CONTENTS**

### **1.0 Description Quarantine box CoolMax**

### **2.0 Structure and execution**

### **3.0 Deletion Generators**

3.1 Size and versions

3.2 Triggering

3.3 Function and application

3.4 Durability

3.5 Interchangeability of the extinguishing generators

3.6 Safety instructions

3.7 Toxicity

3.8 Cleanliness

3.9 Corrosivity

3.10 Maintenance and repair

3.11 Disposal

### **4.0 Contact details**

4.1 Installer of the extinguishing system

4.2 Manufacturer of the quarantine box

## **1.0 Description Quarantine box "Cool Maxx"**

Safely store and store batteries and energy storage devices in the Cool Maxx system

Any damage to an energy storage device or battery may cause the battery to self-ignite up to 72 hours after irritation or other mechanical damage.

If a critical temperature of approx. 65°C is exceeded inside the batteries, the individual battery cells can run away, a so-called thermal runaway.

There are no reliable technical measurement methods in the industry that can indicate or even predict an impending thermal runaway.

Such energy storage devices pose a very great danger not only to the environment, but also to the life and limb of the operator and those around them.

### **The QUARANTINE BOX "Cool Maxx"**

**enables safe storage and storage of such energy storage devices and batteries.**

For this purpose, the quarantine box is equipped with an independently and automatically working fire suppression and extinguishing system.

However, if an intermediate and/or other incident occurs during the quarantine period, the extinguishing system starts automatically and the extinguishing aerosol is distributed throughout the entire quarantine room and the extinguishing process begins automatically.

After the aerosol extinguishing system has been triggered, the aerosol cartridges can be easily replaced by the customer themselves.

The entire system works without any power supply and can therefore be operated regardless of location.

## 2.0 Structure and execution



Large loading opening throughout width of the quarantine box

The loading space opening is positioned for easy loading of the quarantine box using gas pressure dampers

**"On"**  
being held.

Maximum storage space for stored goods



Four stable locks enable the device to be closed securely and tightly

Load compartment opening

Lockable drain connection



Self-triggering extinguishing generator(s) in subfloor

### Connections for the fire department

In the event that the container needs to be additionally filled with water, the following connections are provided for fire hoses:

Upper flood connection for extinguishing water: Lower drain connection:

**2" C-Storz**

**2" C-Storz with stopcock**

## **3.0 Delete generator(s)**



### **3.1 Size and versions:**

Depending on the volume of the quarantine box, different extinguishing generators are used. The only difference between the extinguishing generators is the length and diameter of the generator body.

### **3.2 Triggering:**

The built-in extinguishing generators are triggered automatically via a thermocouple. Depending on requirements, thermocouples with a triggering temperature of: **70°C, 95°C or at 123°C** available.

In addition, the extinguishing generators used also have a mechanical Trigger device. The mechanical release device is guided outside the quarantine box via a cable pull according to customer agreement. The deletion can therefore be triggered mechanically at any time.

### **3.3 Function and application:**

The extinguishing generator contains a solid charge of the aerosol compound. When activated, a controlled combustion process of the charge is started. This produces a very fine aerosol. The aerosol is passed through an oxidation filter, in which the CO is converted into smaller amounts of CO<sub>2</sub> and passes through a cooling bed. There the temperature of the aerosol is quickly reduced before it escapes at low pressure through the discharge openings of the generator.

The aerosol released when the extinguisher generator is activated suppresses the fire through a combination of chemical and physical hydrogen halide-like mechanisms. Due to the extremely small aerosol particles (>2 microns), the effective surface of the extinguishing agent on the fire increases significantly.

The aerosol remains in the room air for about an hour and thus prevents re-ignition.

Subject to design changes. Illustrations and descriptions contain special equipment.

Hasberger Strasse 89 • 27751 Delmenhorst  
[www.ellermann-gmbh.net](http://www.ellermann-gmbh.net) • [info@ellermann-gmbh.net](mailto:info@ellermann-gmbh.net)

Tel.: 04221 - 94303 - 0 • Fax: 04221 - 4807

February 9, 2022

### 3.4 Durability:

Stat-X extinguishing generators are designed for an operating time of 10 years.

### 3.5 Interchangeability of the extinguishing generators after a trip:

All extinguishing generators can be replaced by the operator after an extinguishment without special tools.

### 3.6 Safety instructions:

Stat-X systems with thermal activation are only suitable for unoccupied rooms as there is no pre-alarm time and activation cannot be stopped.

If activated manually using a cable pull, appropriate instructions for operation and dangers must be clearly visible in the respective effective areas.



#### **Danger:**

Activated extinguishing generators are thermally processed after the extinguishing process.

The extinguishing generator contains a solid charge of the aerosol compound, which burns off in a controlled manner when activated. This temporarily causes the housing to heat up to approx. 100° Celsius. **After triggering, wait approx. 15 minutes before working on the generator. Check the generator for residual heat!**

### 3.7 Toxicity:

Tests by independent institutes have confirmed that limited, unintentional contact with aerosol in normal market concentrations does not pose a health risk. Contact with aerosol for up to five minutes is considered safe. However, unnecessary contact should be avoided.

### 3.8 Cleanliness:

The extremely fine aerosol suspended particles remain in the room air for a longer period of time and can be easily removed by simply cross-ventilating. Small amounts of aerosol deposited on the floor or other horizontal surfaces can be easily vacuumed up and easily removed with a water-alcohol solution. However, the amount of suspended solids deposited is far less than the by-products formed during combustion.

### 3.9 Corrosivity:

Extensive testing has shown that aerosol has no corrosive effect and for a wide range of materials such as structural metals, plastics, electrical components and complex materials in aviation, film and magnetic tape recording are not harmful.

In all cases it has been shown that Stat-X has no harmful effect on the operation of the devices. The aerosol may cause a slight discoloration of some metal alloys if they are not cleaned immediately after contact, but this is a non-progressive event and has no impact on product functionality.

### **3.10 Maintenance and repair:**

Although Stat-X extinguishing generators require significantly less maintenance than other fire fighting systems, a systematic maintenance program must also be carried out regularly to ensure continuous and proper operation when fighting fires. A periodic maintenance plan must be adhered to. In addition, an appropriate inspection book must be kept and kept available at all times. This must contain at least the following information:

- Generator installation date
- Check interval
- carried out examination process
- maintenance carried out
- Name of the person responsible for carrying out the verification.
- Contact details for the specialist installer

#### **Preventive maintenance:**

Carry out at least preventative maintenance measures according to the following scheme:

#### **Weekly:**

- Checking all connections
- Visual inspection of system components
- Visual inspection of rubber seals and closures

#### **Half-yearly:**

- Inspection and checking of all system and system components

#### **Every 10 years:**

- Replacement of all extinguishing generators including igniters

### **3.11 Disposal:**

In most cases, a discharged generator can be disposed of in any commercial waste landfill. However, it is necessary to familiarize yourself with local regulations and follow them.

#### **Each discharged generator contains the following materials:**

- Stainless steel outer casing (all)
- Soft steel crossbars (30T, 60T, 100T, 250T, 500T, 1,000T)
- Soft steel spacer ring (all)
- Inner housing, top and bottom panels, displays (all sizes) and crossbars made of stainless steel
- Active clay:  
CAS 1333-84-2 (fiber-free aluminum oxide)

## 4.0 Contact details

### 4.1 Installer of the extinguishing system:



#### **HERGERS-Fire protection**

In the Bröltal Center

Eitorfer Strasse 1

53809 Ruppichterath

**Tel.** 02295 – 9083 866

**fax.** 02295 – 9083 868

**E-mail:** info@hergers-brandschutz.de

### 4.2 Manufacturer of the quarantine box:



#### **Ellermann Eurocon GmbH**

Hasbergerstr. 89

27751 Delmenhorst

**Tel.** 0 42 21 / 94 30 30 **E-mail:**

info@ellermann-gmbh.net



# Technische Dokumentation



## QUARANTÄNEBOX „Cool-Maxx“



## **INHALTSVERZEICHNIS**

### **1.0 Beschreibung Quarantänebox CoolMax**

### **2.0 Aufbau und Ausführung**

### **3.0 Löschgeneratoren**

- 3.1 Größe und Ausführungen
- 3.2 Auslösung
- 3.3 Funktion und Anwendung
- 3.4 Haltbarkeit
- 3.5 Austauschbarkeit der Löschgeneratoren
- 3.6 Sicherheitshinweise
- 3.7 Toxizität
- 3.8 Sauberkeit
- 3.9 Korrosivität
- 3.10 Wartung- und Instandhaltung
- 3.11 Entsorgung

### **4.0 Kontaktdaten**

- 4.1 Errichter der Löschanlage
- 4.2 Hersteller der Quarantänebox

## **1.0 Beschreibung Quarantänebox „Cool-Maxx“**

Sicheres aufbewahren und lagern von Akkus- und Energiespeichern in dem System Cool Maxx

Durch eventuelle Beschädigungen an einem Energiespeicher oder Akku besteht die Möglichkeit, dass sich der Akku bis zu 72 Stunden nach einer Irritation, oder einer anderen mechanischen Beschädigung, selbst entzünden kann.

Wird dann im inneren der Batterien eine kritische Temperatur von ca. 65°C überschritten, kann es zu einem Durchgehen der einzelnen Akkuzellen, dem sogenannten Thermal Runaway kommen.

In der Industrie gibt es keinerlei verlässlichen technische Messmethoden, die einen drohenden Thermal Runaway anzeigen oder diesen gar vorausbestimmen können.

Von solchen Energiespeichern geht eine sehr große Gefahr nicht nur für die Umwelt, sondern auch für Leib und Leben des Betreibers und deren Mitmenschen aus.

**Die**

### **QUARANTÄNEBOX „Cool-Maxx“**

**ermöglicht ein sicheres Lagern- und Aufbewahren solcher  
Energiespeicher und Akkus.**

Zu diesem Zweck ist die Quarantänebox mit einem selbstständig und automatisch arbeitendem Brandunterdrückungs- und Löschsystem ausgestattet.

Sollten es während der Quarantänezeit jedoch zu einem Zwischen- und/oder anderen Vorfall kommen, so startet das Löschsystem automatisch und das Löschaerosol verteilt sich im gesamten Quarantäneraum und somit beginnt der Löschvorgang selbstständig.

Nach einer Auslösung der Aerosollöschanlage können die Aerosol-Patronen kinderleicht durch den Kunden selbst ausgetauscht werden.

Das komplette System funktioniert ohne jegliche Stromversorgung und ist somit Standortunabhängig zu betreiben.

## 2.0 Aufbau und Ausführung



Große Ladeöffnung über die gesamte Breite der Quarantänebox

Die Laderaumöffnung wird zur einfachen Beladung der Quarantänebox durch Gasdruckdämpfer in der Position „Auf“ gehalten werden.

Maximaler Stauraum für Lagergut



Vier stabile Arretierungen ermöglichen einen sicheren und dichten Verschluss der Laderaumöffnung

Absperrbarer Entleerungsanschluß



Selbstauslösender Löschgenerator(en) im Unterboden

### Anschlüsse für die Feuerwehr

**Für den Fall, dass der Behälter zusätzlich mit Wasser geflutet werden soll, sind nachstehende Anschlüsse für Feuerwehrschräuche vorgesehen:**

**Ober Flutanschluss für Löschwasser:**

**2" C-Storz**

**Unterer Entleerungsanschluss:**

**2" C-Storz mit Absperrhahn**

## **Annex 9: Manufacturer Correspondence**

**Gabriella Gauci**

---

**Subject:** RE: Quarantine container for lithium ion batteries

---

**From:** Sebastian Huber <[sebastian.huber@sth-anlagenbau.com](mailto:sebastian.huber@sth-anlagenbau.com)>

**Sent:** Tuesday, 19 December 2023, 12:31

**To:** Andre Camilleri <[andre.camilleri@ddeattard.com](mailto:andre.camilleri@ddeattard.com)>

**Subject:** Quarantine container for lithium ion batteries

Hello Andre,

1. Of course, batteries of types other than lithium-ion can also be stored in the COOL-BOXX. The extinguishing generator does not chemically and physically fight a specific material, but acts as an inhibitor for the catalyst during combustion. This extinguishing method is therefore effective against practically ALL known fires!
2. The container should receive a safety inspection every 12 months. This involves a visual inspection of the condition of the seals, the closures, the pull cable for the mechanical release of the extinguisher generator, etc.

The fire extinguishing generator itself has a service life of 15 years, the expiry of which is noted on the generator. It does NOT have to be checked annually for function like a normal fire extinguisher, but must be replaced after expiry (after 15 years). In addition, a visual inspection for mechanical damage should be carried out every 6 months.

3. The waste water is sampled via the drain tap at the front and then disposed of properly. Otherwise, the container is sealed against the escape of the extinguishing media aerosol and water if all closures are closed in accordance with regulations.

Mit freundlichen Grüßen  
With best regards



Sebastian Huber  
Geschäftsführer/ Verkauf



**STH-Anlagenbau GmbH**

Gerstenweg 13  
93092 Barbing

Mobil: 0049/ 174 9990676

Tel: 0049/ 94 01 539 79-0

Fax: 0049/ 94 01 539 79-50

[www.sth-anlagenbau.com](http://www.sth-anlagenbau.com)

Email: [kontakt@sth-anlagenbau.com](mailto:kontakt@sth-anlagenbau.com)

Amtsgericht Regensburg; HRB Nr. 7181

Diese E-Mail enthält vertrauliche und/oder rechtlich geschützte Informationen. Wenn Sie nicht der richtige Adressat sind oder diese E-Mail irrtümlich erhalten haben, informieren Sie bitte sofort den Absender und vernichten Sie diese Mail. Das unerlaubte Kopieren sowie die unbefugte Weitergabe dieser Mail ist nicht gestattet.

This e-mail may contain confidential and/or privileged information. If you are not the intended recipient (or have received this e-mail in error) please notify the sender immediately and destroy this e-mail. Any unauthorized copying, disclosure or distribution of the material in this e-mail is strictly forbidden.

---

## **Annex 10: Method Statement Water Sampling**

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

Crystal Blue  
Block B No 5  
Mac Iver Street  
Sliema SLM 3130  
Malta.

Tel/Fax: +356 21 311665,

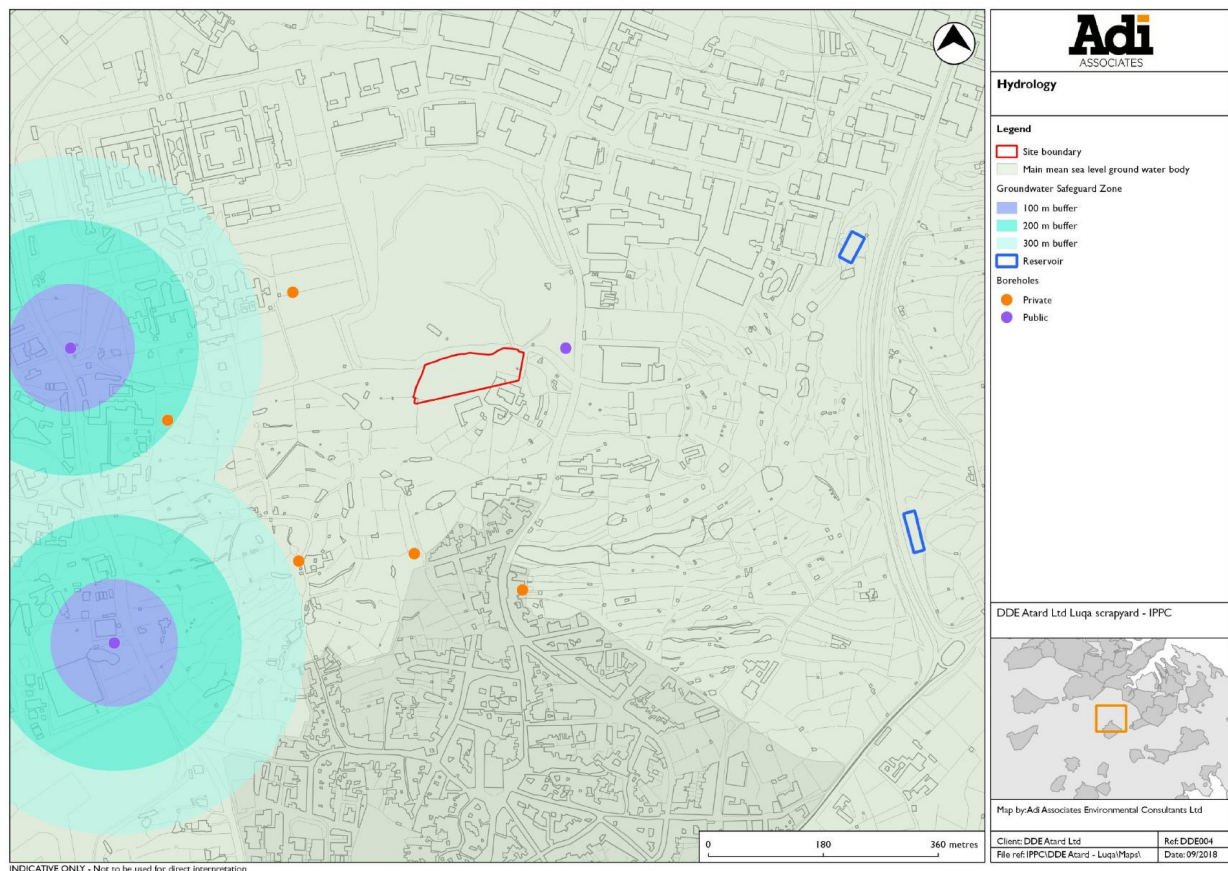
Mobile: +356 9947 0204,

E-mail: peplowg@gmail.com

**REPORT REFERENCE: Version 1.2**

**REPORT DATE: 19th December 2023**

TO  
DDE Attard Ltd  
Scrap Lane  
Luqa



**METHOD STATEMENT:** IPPC Permit IP 0001/13 requires the sampling and analyses of water reservoir overflow, collected within the DDE Attard Ltd facilities.

This revised report follows Report Version 1.1 dated 18 October 2022.



We are submitting this MS for the investigations which includes the following details for the eventual sampling and analysis of the water overflow:

- 1.0 List of parameters.
- 2.0 Standard method of the analysis.
- 3.0 Which tests are accredited.
- 4.0 The lab accreditation certificate.
- 5.0 Sampling method and storage.

At this stage, the following details could not be fulfilled but will be submitted at a later stage:

1. Location of sampling: once the reservoir is complete, sampling points will be indicated and confirmed with ERA, since at present it is not known from where the overflow might occur. The exact location is currently being studied.
2. Sampling frequencies: the rationale being studied is that within the last 5 years, the DDE Attard site was overflowed twice during high rainy days in Malta. With the new design in place, this is considered to possibly not occurring at all unless the storm bursts would be greater than the highest experienced in Malta of >15mm in a brief period of time. Using a risk based approach, because effluent is clean water, risk is low and for these two reasons a 2 year monitoring frequency between October to February is being suggested.

The method of sampling shall be grab sampling following an overflow of the reservoir water. The samples shall be refrigerated immediately upon collection and submitted to the accredited lab within 24 hours.

Code	Parameter	Analyte	LOR	Unit	ACC
W-METMSFL6	Metals – dissolved – by ICP-MS – filtration – group 6	Arsenic	0.005	mg/L	Y
		Cadmium	0.0004	mg/L	Y
		Chromium	0.001	mg/L	Y
		Copper	0.001	mg/L	Y
		Lead	0.005	mg/L	Y
		Lithium	0.05	Mg/L	N
		Nickel	0.002	mg/L	Y
		Selenium	0.01	mg/L	Y
		Tin	0.01	mg/L	Y
		Zinc	0.002	mg/L	Y
W-HG-AFSFL	Mercury (Hg) (Dissolved) by AFS	Mercury	0.01	µg/L	Y
W-CR6-IC	Chromium (VI) by IC	Hexavalent Chromium – Soluble	0.4	µg/L	Y
W-PAHGMS04	PAH by GCMS – group 4 – low limit	Naphthalene	0.007	µg/L	Y
		Acenaphthylene	0.001	µg/L	Y
		Acenaphthene	0.001	µg/L	Y
		Fluorene	0.001	µg/L	Y
		Phenanthrene	0.001	µg/L	Y
		Anthracene	0.001	µg/L	Y

		Fluoranthene	0.001	µg/L	Y
		Pyrene	0.001	µg/L	Y
		Benz(a)anthracene	0.001	µg/L	Y
		Chrysene	0.001	µg/L	Y
		Benzo(b)fluoranthene	0.001	µg/L	Y
		Benzo(k)fluoranthene	0.001	µg/L	Y
		Benzo(a)pyrene	0.001	µg/L	Y
		Indeno(1.2.3.cd)pyrene	0.0003	µg/L	Y
		Benzo(g,h,i)perylene	0.0003	µg/L	Y
		Dibenz(a,h)anthracene	0.0006	µg/L	Y
		Sum of 16 PAH	0.0202	µg/L	Y
		Sum of Benzo(b)fluoranthene@Benzo(k)fluoranthene	0.002	µg/L	Y
		Sum of Indeno(1.2.3.cd)pyrene@Benzo(g,h,i)perylene	0.0006	µg/L	Y
		Sum of 8 PAH (WFD)	0.0126	µg/L	Y
W-TPH6-35/PL	Total hydrocarbons >C12 and <C12.	C12 – C35 Fraction (sum)	35	µg/L	Y
		C6 – C12 Fraction (sum)	15	µg/L	Y
		C10 – C40 Fraction (sum)	50	µg/L	Y
W-DFPCBHMS	PCDD/F+PCB(Dioxin-like+Indicator)	PCB 77		ng/L	Y
		PCB 81		ng/L	Y
		PCB 105		ng/L	Y
		PCB 114		ng/L	Y
		PCB 118		ng/L	Y
		PCB 123		ng/L	Y
		PCB 126		ng/L	Y
		PCB 156		ng/L	Y
		PCB 157		ng/L	Y
		PCB 167		ng/L	Y
		PCB 169		ng/L	Y
		PCB 170		ng/L	Y
		PCB 180		ng/L	Y
		PCB 189		ng/L	Y
		TEQ (dl-PCB) – lower	0.6	ng/L	Y
		TEQ (dl-PCB) – upper	0.6	ng/L	Y
		PCB 28		ng/L	Y
		PCB 52		ng/L	Y
		PCB 101		ng/L	Y
		PCB 118			
		PCB 138			
		PCB 153		ng/L	Y
		PCB 180		ng/L	Y
		Total Polychlorinated biphenyls – 7 congeners – lower	0.6	ng/L	Y
		Total Polychlorinated biphenyls – 7 congeners – upper	0.6	ng/L	Y
		2378-TCDD		pg/L	Y
		12378-PeCDD		pg/L	Y
		123478-HxCDD		pg/L	Y
		123678-HxCDD		pg/L	Y

		123789-HxCDD		pg/L	Y
		1234678-HpCDD		pg/L	Y
		OCDD		pg/L	Y
		2378-TCDF		pg/L	Y
		12378-PeCDF		pg/L	Y
		23478-PeCDF		pg/L	Y
		123478-HxCDF		pg/L	Y
		123678-HxCDF		pg/L	Y
		123789-HxCDF		pg/L	Y
		234678-HxCDF		pg/L	Y
		1234678-HpCDF		pg/L	Y
		1234789-HpCDF		pg/L	Y
		OCDF		pg/L	Y
		TEQ-Lowerbound	5	pg/L	Y
		TEQ-Upperbound	5	pg/L	Y
W-CNT-PHO	Cyanides (CN) -Total by photometry	Total Cyanide	0.005	mg/L	Y
W-VOCGMS01+05	BTEX (VOC) by GCMS - group 1 a 5	Benzene	0.2	µg/L	Y
		Toluene	0.5	µg/L	Y
		Ethylbenzene	0.1	µg/L	Y
		meta- & para-Xylene	0.2	µg/L	Y
		ortho-Xylene	0.1	µg/L	Y
		Sum of BTEX	1.1	µg/L	Y
W-VOCGMS01+05	Volatile organic compounds (VOC) by GCMS - group 1 a 5	Chlorobenzene	0.1	µg/L	Y
		1.1.2.2-Tetrachloroethane	0.2	µg/L	Y
		cis-1.3-Dichloropropene	1	µg/L	Y
		Tetrachloromethane	0.1	µg/L	Y
		1.2-Dichloropropane	1	µg/L	Y
		1.2.4-Trichlorobenzene	0.1	µg/L	Y
		1.2-Dichlorobenzene	0.1	µg/L	Y
		Bromomethane	1	µg/L	Y
		1.2.3-Trichlorobenzene	0.1	µg/L	Y
		Trichlorofluoromethane	1	µg/L	Y
		2-Chlorotoluene	1	µg/L	Y
		1.1.1.2-Tetrachloroethane	0.1	µg/L	Y
		1.3-Dichloropropane	1	µg/L	Y
		1.2-Dibromo-3-chloropropane	1	µg/L	Y
		1.2.3-Trichloropropane	1	µg/L	Y
		1.1-Dichloropropene	1	µg/L	Y
		1.1.2-Trichloroethane	0.2	µg/L	Y
		1.3.5-Trichlorobenzene	0.2	µg/L	Y
		Bromochloromethane	2	µg/L	Y
		Chloroethane	1	µg/L	Y
		Chloromethane	1	µg/L	Y
		1.1-Dichloroethene	0.1	µg/L	Y
		1.4-Dichlorobenzene	0.1	µg/L	Y
		1.1-Dichloroethane	0.1	µg/L	Y
		Dichlorodifluoromethane	1	µg/L	Y
		1.3-Dichlorobenzene	0.1	µg/L	Y
		1.2-Dibromoethane (EDB)	0.5	µg/L	Y

		1,2-Dichloroethane	0.5	µg/L	Y
		1,1,1-Trichloroethane	0.1	µg/L	Y
		Hexachlorobutadiene	1	µg/L	Y
		4-Chlorotoluene	1	µg/L	Y
		Bromobenzene	1	µg/L	Y
		trans-1,3-Dichloropropene	1	µg/L	Y
		Dibromomethane	1	µg/L	Y
		2,2-Dichloropropane	1	µg/L	Y
		Dichloromethane	6	µg/L	Y
		trans-1,2-Dichloroethene	0.1	µg/L	Y
		Trichloroethene	0.1	µg/L	Y
		cis-1,2-Dichloroethene	0.1	µg/L	Y
		Tetrachloroethene	0.2	µg/L	Y
		Vinyl chloride	0.1	µg/L	Y
		Chloroform	0.1	µg/L	Y
		Bromodichloromethane	0.1	µg/L	Y
		Dibromochloromethane	0.1	µg/L	Y
		Bromoform	0.2	µg/L	Y
		Sum of 1,2-Dichloroethenes	0.2	µg/L	Y
		Sum of 3 Dichlorobenzenes	0.3	µg/L	Y
		Sum of 3 Trichlorobenzenes	0.4	µg/L	Y
		Sum of 4 Trihalomethanes	0.5	µg/L	Y
		Sum of 5 Chlorinated Ethenes	0.6	µg/L	Y
		Sum of Trichloroethene and Tetrachloroethene	0.3	µg/L	Y
		sec-Butylbenzene	1	µg/L	Y
		tert-Butylbenzene	1	µg/L	Y
		1,3,5-Trimethylbenzene	1	µg/L	Y
		1,2,4-Trimethylbenzene	1	µg/L	Y
		Isopropylbenzene	1	µg/L	Y
		p-Isopropyltoluene	1	µg/L	Y
		n-Propylbenzene	1	µg/L	Y
		Sum of BTEXS	1.3	µg/L	Y
		n-Butylbenzene	1	µg/L	Y
		Styrene	0.2	µg/L	Y
		Indane	0.2	µg/L	Y
		1,4-Dioxane	50	µg/L	Y
		tert-Butyl alcohol	5	µg/L	Y
		Methyl tert-Butyl Ether (MTBE)	0.2	µg/L	Y
		Ethyl tert-Butyl Ether (ETBE)	0.2	µg/L	Y
		Diisopropyl ether (DIPE)	0.6	µg/L	Y
		tert-Amyl Ethyl Ether (TAEE)	0.2	µg/L	Y
		tert-Amyl Methyl Ether (TAME)	0.2	µg/L	Y
W-VOCFID02	VOC by GC-FID – group 2	Methyl isobutyl ketone	100	µg/L	Y
W-MEK-GMS	2-Butanone (MEK) by HS-GC-MSD –S	2-Butanone (MEK)	500	µg/L	Y
W-PH-PCT	pH at 25 °C by Electrode	pH Value	1	–	Y

W-CL-IC	Chlorides (Cl) (Dissolved) by IC	Chloride	1	mg/L	Y
---------	-------------------------------------	----------	---	------	---

#### EQUIVALENT STANDARD METHODS AND METHOD OF STORAGE.

Code	Parameter	Method	Minimal amount/ Container
W-METMSFL6	Metals – dissolved – by ICP-MS – filtration – group 6	US EPA 200.8, CSN EN ISO 17294-2, US EPA 6020A, CSN EN 16192, CSN 75 7358	10 ml, Acid washed glass with HNO <sub>3</sub> 1x 60 ml
W-HG-AFSFL	Mercury (Hg) (Dissolved) by PSA	US EPA 245.7, CSN EN ISO 178 52, CSN EN 16192	10 ml, Acid washed glass with HCl 1x 60 ml
W-CR6-IC	Chromium (VI) by IC	CSN EN 16192, EPA 7199, SM 3500-Cr	60 ml, Acid washed glass with (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> , NH <sub>4</sub> OH 1x 60 ml
W-PMETFL	Filtered 0.45 µm and acidification – Dis. metals	ALS internal methodology	
W-PAHGMS04	PAH by GCMS – group 4 – low limit	US EPA 8270D, US EPA 8082A, CSN EN ISO 6468, US EPA 8000D	500 ml, Amber acid washed glass 1x 500 ml
W-TPH6-35/PL	TPH fractions C6-C35/PL	CSN EN ISO 9377-2, US EPA 601, US EPA 8260, US EPA 8015, RBCA Petroleum Hydrocarbon Methods	200 ml, Amber acid washed glass 1x 250 ml, 80 ml, Acid washed glass vial (fill in without bubble) with NaHSO <sub>4</sub> 2x 40 ml
W-DFPCBHMS	PCDD/F+PCB(Dioxin-like+Indicator)	US EPA 1613, US EPA 1668, US EPA 1668, modified	1000 ml, Amber acid washed glass 1x 1000 ml
W-F-IC	Fluorides (F) by IC	CSN ISO 10304-1, CSN EN 16192	12 ml, Acid washed glass 1x 60 ml
W-F-ISE	Fluoride (F) – total inorganic by ISE	ALS internal methodology	50 ml, Acid washed glass 1x 60 ml
W-CNT-PHO	Cyanides (CN) –Total by photometry	CSN 75 7415, CSN EN ISO 14403-2	60 ml, Acid washed glass with NaOH 1x 60 ml
W-VOCGMS01+05	Volatile organic compounds (VOC) by GCMS – group 1 a 5	US EPA 624, US EPA 8260, US EPA 8015, CSN EN ISO 10301, MADEP 2004, rev. 1.1, CSN ISO 11423, CSN EN ISO 15680	80 ml, Acid washed glass vial (full, no bubble) with NaHSO <sub>4</sub> 2x 40 ml
W-VOCFID02	VOC by GC-FID – group 2	US EPA 624, US EPA 8260, US EPA 8015, CSN EN ISO 10301, MADEP 2004, rev. 1.1, CSN	80 ml, Acid washed glass vial (fill in without bubble) with NaHSO <sub>4</sub> 2x 40 ml

		ISO 11423, CSN EN ISO 15680	
W-MEK-GMS	2-Butanone (MEK) by HS-GC-MSD -S	Internal methodology (GC/MS)	250 ml, Amber acid washed glass 1x 250 ml
W-PH-PCT	pH at 25 °C by Electrode	CSN ISO 10523, US EPA 150.1, CSN EN 16192, SM 4500-H(+)	50 ml, Acid washed glass 1x 60 ml
W-TSD-GR	Total solids (105 °C) by gravimetry	CSN 75 7350, SM 2540 B, D, E	100 ml, Acid washed glass 1x 125 ml
W-TDS-GR	Total dissolved solids (105°C)	CSN 75 7346, CSN 757347, CSN EN 16192, CSN EN 15216, SM 2540 C	200 ml, Acid washed glass 1x 250 ml
W-TOC-IR	Total organic carbon (TOC)	CSN EN 1484, CSN EN 16192, SM 5310	25 ml, Acid washed glass with HCl 1x 60 ml
W-SO4-ICL	Sulphate (SO4) dissolved by IC – low limit	CSN ISO 10304-1, CSN EN 16192	12 ml, Acid washed glass 1x 60 ml
W-CL-IC	Chlorides (Cl) (Dissolved) by IC	CSN ISO 10304-1, CSN EN 16192	12 ml, Acid washed glass 1x 60 ml
W-PHI-CFA	Phenol index by CFA	CSN EN ISO 14402, CSN EN 16192, SKALAR company methodology	100 ml, Amber acid washed glass with H3PO4, CuSO4 1x 100 ml
W-DOC-IR	Dissolved organic carbon (DOC)	CSN EN 1484, CSN EN 16192, SM 5310	25 ml, Acid washed glass 1x 60 ml
W-ASB-TEM	Asbestos – drinking water – quantitative determination by TEM – S	EPA 100.1, EPA 1993 [ALS Cincinnati]	500 ml, Amber acid washed glass 1x 500 ml



DR GEORGE PEPLow

## **Annex 11: EV and HEV pre-acceptance procedure**

# EV and HEV pre-acceptance procedure

Date Created	18.12.2023
Version No.	1
Last Update	18.12.2023

## Pre-Acceptance Procedure for Identifying Lithium-Ion Batteries in EoLVs

**Objective:** To efficiently identify the presence of lithium-ion batteries in End-of-Life Vehicles within a limited timeframe. Electric and Hybrid end of life vehicles with a battery type other than lithium-ion will not be accepted. Therefore, it is crucial to meticulously follow these steps to ascertain the battery type.

### Procedure:

Step 1 and Step 2 documentation must be provided in advance for review and rechecked on-site. Step 3 will be carried out directly on-site.

#### **Step 1: Identifying Brand and Model:**

- Check the vehicle's make and model.
- Refer to an up-to-date database or list that categorizes vehicles by battery type to confirm if the specified make and model typically uses lithium-ion batteries.

#### **Step 2: Logbook Examination:**

- Review the vehicle's logbook to confirm vehicle details.

#### **Step 3: Visual Inspection:**

- Thoroughly inspect the vehicle exterior and interior for any labels or indicators of battery type, through specific design features typical of EVs and HEVs.



- Conduct an inspection beneath the interior fabric of the vehicle after lifting it.