



# **Environmental Risk Assessment (ERA)**

**EV Recycling Ltd.**

**September 2023**

## **Site Location:**

**EV Recycling,  
Unit 12, Llanelli Gate,  
Dafen,  
Llanelli,  
United Kingdom,  
SA14 8LQ**

## Overview

This Environmental Risk Assessment has been conducted for EV Recycling Ltd, by EV Recycling Ltd. The site/location being assessed is intended to be used by the business for recycling activities and processing of lithium ion battery cells and **hazardous waste battery manufacturing scrap materials**. This involves a mechanical crushing process for the battery cells and hazardous material, separation of processed outputted material and storage of outputted products (including precious metals).

| Document Revision History |                    |         |  |
|---------------------------|--------------------|---------|--|
| Date                      | Author             | Version | Notes  |
| 09/05/2019                | Sam Joseph         | 1       | Report   |
| 03/09/2019                | Sam Joseph         | 2       | Page numbers added, section 4 added & other content updated                              |
| 15/01/2020                | George Chamberlain | 3       | Address  |
| 05/02/2020                | Sam Joseph         | 4       | Address Updated, Dates Updated   |
| 16/03/2020                | Sam Joseph         | 5       | Confidentiality Review   |
| 22/09/2023                | Sam Joseph         | 6       | Updated assessment to include the hazardous waste battery manufacturing scrap materials. |

## Assessment Part 1

Date of Assessment: 21/09/2023

|                                    |  |
|------------------------------------|--|
| <b>Hazard:</b>                     | Dust   |
| <b>Reason for Hazard:</b>          | The crushing process for the lithium ion battery cells and hazardous waste battery manufacturing scrap materials could generate some dust, which would be formed of metallic particles (cobalt, nickel, graphite, lithium oxide, etc.)   |
| <b>Possible Pathways:</b>          | Air  |
| <b>Possible Receptors:</b>         | Workforce<br>Nearby businesses<br>Local flora/fauna  |
| <b>Consequences:</b>               | <ul style="list-style-type: none"> <li>- Nuisance to local environment if dust is not contained.</li> <li>- In the long term, dust has the potential to cause respiratory issues in workforce or people at nearby businesses</li> </ul>  |
| <b>Control Measures:</b>           | <ul style="list-style-type: none"> <li>- Contain dust by carrying out activities indoors and enclosing the area during crushing process (keep doors shut).</li> <li>- Use air filtration system to remove dust from the air.</li> <li>- Handle materials in a suitable manner to prevent extra dust</li> <li>- PPE for workforce (Health &amp; Safety measures)</li> </ul> |
| <b>Likelihood of Hazard:</b>       | Very likely that some dust will be produced, however it is also likely to be in small quantities   |
| <b>Level of Risk to Receptors:</b> | <b>Very low</b> when control measures are applied  |
| <b>Further notes:</b>              | Both the batteries and the hazardous waste battery manufacturing scrap materials are able to be processed through the crushing machinery in exactly the same way.  |

## Assessment Part 2

Date of Assessment: 21/09/2023

|                                    |  |
|------------------------------------|--|
| <b>Hazard:</b>                     | Noise & Vibrations   |
| <b>Reason for Hazard:</b>          | The mechanical crushing process will generate some noise and also vibrations as a result   |
| <b>Possible Pathways:</b>          | Air, Ground  |
| <b>Possible Receptors:</b>         | Workforce<br>Nearby Businesses   |
| <b>Consequences:</b>               | <ul style="list-style-type: none"> <li>- Nuisance to local businesses if there is too much noise</li> <li>- Compromise workforce safety (ear damage)</li> </ul>  |
| <b>Control Measures:</b>           | <ul style="list-style-type: none"> <li>- Adhere to local noise constraints (decibels reading, frequency of activities)</li> <li>- Maintain machinery so that no excess noise/vibration is produced</li> <li>- Locate crushing machinery at furthest away point from offices and apply screening (indoor activity, and near trees to absorb noise)</li> <li>- PPE for workforce (Health &amp; Safety measures)</li> </ul> |
| <b>Likelihood of Hazard:</b>       | Certain - noise will be produced   |
| <b>Level of Risk to Receptors:</b> | <b>Low</b> - the noise level will adhere to limits and the frequency of activities producing noise will be limited to a few times per month  |
| <b>Further notes:</b>              |  |

### Assessment Part 3

Date of Assessment: 21/09/2023

|                                    |  |
|------------------------------------|--|
| <b>Hazard:</b>                     | Battery cell fluid / liquid (electrolyte)  |
| <b>Reason for Hazard:</b>          | During the treatment & crushing process, small quantities of electrolyte fluid (liquid and/or slurry and/or powder) may be exposed to the environment  |
| <b>Possible Pathways:</b>          | Surface water drains and ground  |
| <b>Possible Receptors:</b>         | Nearby streams, rivers and watercourses<br>Aquatic life<br>Workforce   |
| <b>Consequences:</b>               | If it escapes to the environment, electrolyte fluid may be harmful to aquatic life through pollution of water courses  |
| <b>Control Measures:</b>           | <ul style="list-style-type: none"><li>- Ensure crushing activities are carried out on impermeable surfaces</li><li>- Install a 'catch-tray' under the machinery to prevent escape of fluid</li><li>- Safeguard the process by keeping a 'spill kit' nearby and make certain that it is accessible at all times</li><li>- Post-activity checks for leaks</li><li>- Prevent workforce contact with electrolyte (PPE, Health &amp; Safety)</li><li>- Air quality monitoring to detect fumes in the air from electrolyte</li><li>- Condensing system to catch any electrolyte and store safely within sealed containers.</li></ul> |
| <b>Likelihood of Hazard:</b>       | Likely - at present, it can be assumed that all lithium ion battery cells have at least a small quantity of electrolyte solution type inside of them   |
| <b>Level of Risk to Receptors:</b> | <b>Very low</b> if control measures are adhered to   |
| <b>Further notes:</b>              | Electrolyte solutions are composed of organic solvents, LIPF6 salt and various additives, and vary depending on battery type   |

## Assessment Part 4

Date of Assessment: 21/09/2023

|                                    |  |
|------------------------------------|--|
| <b>Hazard:</b>                     | Fire   |
| <b>Reason for Hazard:</b>          | The potential for fire from materials stored on-site if proper handling is neglected, and in the event of a fire the firewater run-off could be contaminated and cause harm to the environment if measures are not put in place  |
| <b>Possible Pathways:</b>          | Air/wind & materials can spread fire, and firewater run-off can transport potentially contaminated water via watercourses  |
| <b>Possible Receptors:</b>         | Workforce<br>Nearby businesses<br>Local flora/fauna<br>Local watercourses  |
| <b>Consequences:</b>               | <ul style="list-style-type: none"> <li>- Nuisance to local environment if dust is not contained.</li> <li>- In the long term, dust has the potential to cause respiratory issues in workforce or people at nearby businesses</li> </ul>  |
| <b>Control Measures:</b>           | <ul style="list-style-type: none"> <li>- Separation of incompatible / combustible materials and ignition sources to remove potential ignition sources</li> <li>- No smoking policy on-site</li> <li>- Minimise stockpile, incorporate fire-breaks in material storage</li> <li>- Fire training and emergency drills</li> <li>- Provision of fire extinguishers and fire safety equipment</li> <li>- Store materials on an impermeable surface within a bunded area in close proximity to foul drainage in order to prevent firewater run-off reaching the environment</li> </ul> |
| <b>Likelihood of Hazard:</b>       | Highly unlikely  |
| <b>Level of Risk to Receptors:</b> | <b>Very low</b> when control measures are applied  |
| <b>Further notes:</b>              | See the fire procedure in Section 5 of the EMS (Environmental Management System)   |

|                            |   |
|----------------------------|---|
| <b>Overall Risk:</b>       | <b>Low; if control measures and management techniques are applied</b> |
| <b>Date of Assessment:</b> | <b>21/09/2023</b>   |
| <b>Assessed By (Name):</b> | <b>Sam Joseph</b>   |
| <b>Checked by:</b>         | <b>George Chamberlain</b>   |

