Environmental Risk Assessment (ERA)

for

EV Recycling Ltd.

Site Location:

EV Recycling Ltd., ATC Wales,
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 used by the business for recycling activities including the storage of and processing of lithium ion batteries and battery manufacturing scrap materials, and output of graded product materials. The process uses mechanical crushing processes, separation of processed material and storage of outputted products.

Document Revision History			
Date	**Author**	**Version**	**Notes**
09/05/2019	Sam Joseph	1	Report
03/09/2019	Sam Joseph	2a	Page numbers added, section 4 added & other content updated
15/01/2020	George Chamberlain	2b	Address
05/02/2020	Sam Joseph	2c	Address Updated, Dates Updated
16/03/2020	Sam Joseph	2d	Confidentiality Review
04/09/2023	Sam Joseph	2	Review and minor adjustments in line with the Permit Variation
20/03/2025	Sam Joseph	3	Review to ensure all information is up to date and still accurate

Assessment Part 1	
Date of Assessment:	**20/03/2025**
Hazard:	Dust
Reason for Hazard:	The dry crushing process for the lithium ion battery cells and battery manufacturing scrap materials has the potential to generate dust, which is formed of fine metallic particles (cobalt, nickel, graphite, lithium oxide, etc.)
Possible Pathways:	Air
Possible Receptors:	Workforce Nearby businesses Local flora/fauna
Consequences:	- Nuisance to local environment if dust is not contained - In the long term, dust has the potential to cause respiratory issues in workforce or people at nearby businesses
Control Measures:	- Contain dust by carrying out activities indoors and enclosing the area during crushing/recycling processes (keep doors shut) - Use air filtration system to remove dust from the air - Handle materials in a suitable manner to prevent extra dust - Suitable PPE for workforce (Health & Safety measures)
Likelihood of Hazard:	Very likely that some dust will be produced, however it is also likely to be in small quantities during normal operations. In the event of a system failure, all equipment is shut down immediately to prevent dust escaping into the working area and environment.
Level of Risk to Receptors:	**Very low** when control measures are applied
Further notes:	

Assessment Part 2	
Date of Assessment:	**20/03/2025**
Hazard:	Noise & Vibrations
Reason for Hazard:	The mechanical crushing process will generate some noise and also vibrations as a result
Possible Pathways:	Air, Ground
Possible Receptors:	Workforce Nearby Businesses
Consequences:	- Nuisance to local businesses if there is too much noise - Compromise workforce safety (ear damage)
Control Measures:	- Adhere to local noise constraints (e.g. regular decibels readings) - Maintain machinery so that no excess noise/vibration is produced - Locate crushing machinery away from walls and features that can propagate noise and vibrations - Apply screening and soundproofing materials to equipment and to the indoor area where the activities are being conducted - Suitable PPE for workforce (Health & Safety measures)
Likelihood of Hazard:	Certain - noise will be produced
Level of Risk to Receptors:	**Low** - the noise levels are mitigated using the control measures, in order to ensure no adverse effects on local receptors
Further notes:	

Assessment Part 3	
Date of Assessment:	**20/03/2025**
Hazard:	Battery cell fluid/liquid (electrolyte)
Reason for Hazard:	Batteries have electrolyte fluid contained within the cells. Under normal circumstances, this is not exposed. Electrolyte is extracted, collected separately and sealed in containers/drums.
Possible Pathways:	Surface water drains and ground Air due to electrolyte solvent vapour
Possible Receptors:	Nearby streams, rivers and watercourses Aquatic life Workforce
Consequences:	If it escapes to the environment, electrolyte fluid may be harmful to aquatic life through pollution of water courses
Control Measures:	- Ensure that electrolyte is captured from the batteries and battery manufacturing scrap materials using vacuum oven drying. - Ensure crushing activities are carried out on impermeable surfaces and inside the designated area with doors closed. - Install a 'catch-tray' under the machinery to prevent escape of fluid - Safeguard the process by keeping a 'spill kit' nearby and make certain that it is accessible at all times - Post-activity checks for leaks - Prevent workforce contact with electrolyte (PPE, Health & Safety)
Likelihood of Hazard:	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. Some battery manufacturing scrap materials also comes with electrolyte (e.g. EWC 16 03 03).
Level of Risk to Receptors:	**Very low** if control measures are adhered to
Further notes:	Electrolyte solutions are composed of organic solvents, LIPF6 salt and various additives, and vary depending on battery type

Assessment Part 4	
Date of Assessment:	**20/03/2025**
Hazard:	Fire
Reason for Hazard:	The potential for fire from materials stored on-site exists if proper handling, monitoring and maintenance is neglected. 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
Possible Pathways:	Air/wind & materials can spread fire, and firewater run-off can transport potentially contaminated water via watercourses
Possible Receptors:	- Workforce - Nearby businesses - Local flora/fauna - Local watercourses
Consequences:	- Smoke damage to personnel, equipment, structural and local air quality - Property/equipment damage due to firewater ingress/burning - Injury or death to people in the local area - Disruption to our own and other businesses - Potential closure of nearby main road (A4138)
Control Measures:	- Acceptance & Inspection process for accepting waste batteries - Categorisation of batteries to identify potential risk - Separation of incompatible/combustible materials and ignition sources to remove potential ignition sources - No Smoking Policy, applicable to anywhere on the premises - Minimise stockpile, incorporate fire-breaks in material storage - Fire training, roles & responsibilities list and emergency drills - Provision of fire extinguishers and fire safety equipment - 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 - Daily temperature & visual monitoring of waste storage areas
Likelihood of Hazard:	Highly unlikely when control measures are applied
Level of Risk to Receptors:	**Very low** when control measures are applied
Further notes:	The main fire potential is thermal runaway of lithium-ion batteries

Overall Risk:	**Low; if control measures and management techniques are applied**
Date of Assessment:	**20/03/2025**
Assessed By (Name):	**Sam Joseph**
Approved by (Name):	**James Bates**