Using Batteries and Battery Charging

RAMS042-CEN

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1	26/11/2025	Steve Usher	Reviewed, - archived old revision, - drafted new document format, - Updated responsibilities, - Added Introduction, - Up-dated Scope

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1 Introduction

1.1 This Risk Assessment and Method Statement (RAMS) outlines the safe system of work for the handling, use, charging, and storage of batteries across all Hatton Traffic Management operations. It establishes the hazards, control measures, and responsibilities required to prevent injury, fire, environmental damage, or equipment failure associated with battery-related tasks.

2 Scope

2.1 This RAMS applies to all employees, contractors, and visitors involved in the handling, use, inspection, movement, charging, storage, and disposal of any type of battery, including but not limited to:

- Vehicle batteries
- Traffic and Pedestrian light batteries
- Tool and equipment batteries
- Rechargeable portable power units
- Hybrid/plant batteries
- Temporary power supply batteries

2.2 This RAMS document applies to all operational locations including depots, yards, workshops, sites, vehicles, and temporary work environments.

3 Statement

3.1 Hatton Traffic Management is committed to ensuring that all work activities involving the handling, use, charging, transport, and storage of batteries are carried out in a safe and controlled manner. This RAMS document sets out the hazards associated with battery operations and defines the safe working practices, responsibilities, and control measures required to prevent injury, fire, environmental harm, or damage to equipment.

All personnel undertaking battery-related tasks must comply with this RAMS and follow the established safe systems of work, use the required personal protective equipment (PPE), and report any defects, unsafe conditions, or incidents immediately. Supervisors are responsible for ensuring that the workplace, equipment, and employees operate in accordance with this RAMS and that battery charging and storage areas remain compliant and hazard-free.

3.2 This RAMS document must be read, understood, and signed by all persons involved in the task before work begins. Failure to adhere to these requirements may place individuals and the operation at significant risk and will be treated as a breach of company health and safety procedures.

Note A dynamic Risk assessment MUST be undertaken by the person undertaking the battery related task(s)

4 Responsibilities

4.1 QHSE Manager / Team:

- Review risk assessments and safe systems of work

- Audit battery storage, charging practices, and compliance
- Provide guidance on regulations, environmental impact, and safety standards
- Investigate battery-related incidents and recommend improvements.

4.2 General Managers:

- Ensure compliance with legislation (COSHH, WEEE, ADR, fire safety)
- Allocate safe, ventilated, and clearly marked charging areas
- Provide correct charging equipment and ensure compatibility
- Ensure staff training and competence in battery handling, charging, and emergency procedures
- Implement inspection, maintenance, and replacement programs for batteries
- Ensure proper disposal/recycling of used or damaged batteries
- Monitor operational compliance and incident reporting
- Promote sustainable battery use and continuous improvement.

4.3 Supervisors:

- Supervise all battery handling and charging activities within their area
- Ensure designated charging areas are maintained and hazards addressed
- Maintain battery logs and track usage, maintenance, and replacements
- Ensure staff follow RAMS for battery handling and charging
- Conduct pre-use inspections of batteries and charging equipment
- Report any damaged or defective batteries
- Enforce PPE and safety rules during charging activities
- Escalate incidents or defects to GM promptly.

4.4 Operatives, Gangers and Staff:

- Handle batteries safely according to training and RAMS
- Only use designated charging areas and correct chargers
- Report leaks, corrosion, or faults immediately
- Use required PPE during handling and charging
- Follow emergency procedures in case of spill, fire, or exposure

5 Linked Documents

Document Name
PY003-CEN Incident Reporting Policy
PR006-CEN Spillage Procedure

PY007-CEN Lone Working Policy
PY051-CEN Working at Height Policy
PY053-CEN Personal Protection Policy (PPE)
RA016-CEN Manual handling (Generic) RA

6 Personal protective Equipment (PPE)

6.1 Minimum requirements on site for these RAMS for all personnel are:

Hard Hat	Eye Protection	Hi-Vis Clothing	Safety Gloves	Safety Boots
				
Colour dependent on role, with 4-point chin strap that meet EN397 & EN12 492 standards. Head torch to be worn for night working and poor visibility	Safety glasses or goggles Chemical Splash proof	Protective Apron Chemical Splash proof	Acid-resistant gloves and goggles for handling batteries.	(laced only) metatarsal if required by client / contractor S3 steel toe cap, midsole with ankle support

7 Method(s)

7.1 Preparing for battery handling & storage

- Always wear the required PPE before handling batteries.
- Inspect each battery for signs of damage or leakage. If damaged, report and remove from service.
- Store batteries in designated areas, away from direct heat sources and flammable materials.
- Store batteries upright to prevent leaks or spills.
- Always use the designated trolley for transporting/moving batteries from the charging area to your vehicle/traffic light boxes.

7.2 Preparing for charging

- Ensure that the charging area is clean, dry, and well-ventilated.
- Check the battery type and manufacturer's instructions for appropriate charging settings (voltage and current).
- Inspect charging equipment for any signs of damage before use.
- Ensure emergency shut-off switches and fire extinguishers are easily accessible in the charging area.

7.3 Charging Batteries

- Connect the battery to the charger using the correct terminals (positive to positive, negative to negative).
- Set the charger to the correct voltage and amperage for the battery type.
- Monitor the charging process to ensure the battery does not overheat.
- Never charge a battery that shows signs of bulging, leakage, or abnormal heat.

7.4 Post Charging

- Disconnect the battery once it is fully charged.
- Inspect the battery for any signs of damage during the charging process.
- Return the battery to the correct area, i.e. Charged batteries or use as required.
- If the battery is not being used immediately, ensure it is stored properly.

7.5 Clean-up

- Clean any spills or leaks immediately using the appropriate absorbent materials.
- Any clean up materials is to be disposed of as hazardous waste.
- Ensure the charging area is tidy and free from any debris or obstructions.
- Any equipment that has been used is clean and stored away correctly.

7.6 Battery Management

- Batteries returned from a site must be charged within 48 hours.
- Move batteries to the charged storage rack once charged, daily.
- Inspect, repair and test batteries as and when set aside by the operators.
- Rotate batteries at the rear of the charged storage bay every month.
- Inspect and test all batteries every 3 months – intercept batteries as they return from installations.

7.7 Battery Inspection

- Check battery cables for damage and frayed connections.
- Check battery terminal fittings for loose fittings and missing protection caps.
- Check battery cases for cracks and leaking acid.
- Check battery terminals for evidence of shorted terminals.
- Check serial number label is present.

7.8 Battery Repair (Must be a competent Person)

- Damaged battery cables – see Appendix A
- Loose battery terminal fittings – see Appendix B
- Missing terminal protection caps – see Appendix B

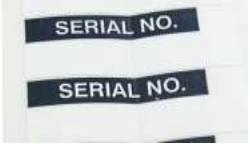
7.9 New Battery Deployment

- Measure battery terminal voltage upon delivery BEFORE CHARGING – the voltage should be >12.6V
- Apply serial numbers to serial number labels with a permanent marker with the next available serial numbers in the Battery Management Register
- Apply the serial number label to the top face of the battery next to the -VE terminal
- Reposition the red and black terminal caps to expose the threaded terminal posts
- Connect the TLL-40 battery cables to the correct terminals
- Fit M8 plastic dome nuts to the terminals
- Charge all batteries
- Fill in the Battery Management Register for each new battery
- Deploy batteries for use by the Operatives

8 Tools and Equipment

8.1 Tools and equipment required for Battery Maintenance and repairs

Serial	Equipment	Image
01	PPE (gloves, goggles, aprons).	
02	Spill containment trays	
03	Fire extinguishers (CO2 or/and Powder type).	

04	Insulated spanner – INSRW604	
05	Wire strip and crimp tool	
06	UNC 5/16 Stainless Steel nut Westfield Fasteners	
07	M8 Stainless steel washers	
08	M8 Plastic Dome nuts	
09	M8 Battery ring terminals	
10	40A battery fuse	
11	Serial number labels	

12	Inspection and Test labels	
13	Permanent marker for labels	
14	Transport trolley	
15	Autoranging Multimeter	
16	Stanley STST1-75518 Toolbox	
Additional Items		
17	Crimp tool	
18	Battery connector terminals	

19	Battery Capacity Meter ACT 612 - ACT	
20	CTEK MXS 5.0 Battery Charger and Reconditioner	

9 Appendix A

9.1 Battery Cable maintenance

Appendix B

9.2 Battery Maintenance

10 Risk Assessments

10.1 The following Risk assessments are based on battery related tasks.

10.2 If any risks, operational or environmental are identified when carrying out the on-site dynamic risk assessment, you **MUST** inform your supervisor immediately and prior to the battery related task(s)

Note You **MUST** ensure that any risk(s) that have been identified throughout the battery related task(s) are controlled, and if in any doubt **"STOP"** works and contact your supervisor.

10.3 If at any point throughout your work, you encounter an unsafe situation you **MUST** stop work and contact your supervisor immediately for guidance.

10.4 The risk assessments **MUST** be communicated to all personnel undertaking any battery related tasks.

- If ANY risk is **HIGH**, do not proceed with the operation, abandon the job, or look at alternative delivery methods.
- If ANY risk is **MEDIUM**, proceed only with caution, introduce additional control measures where possible.
- If All risk is **LOW**, proceed with work.

10.5 Risk Scoring Methodology & Risk Assessment Works

Likelihood Categories		Severity Score				
Category	**Description**	**1**	**2**	**3**	**4**	**5**
1	Extremely Unlikely	1	2	3	4	5
2	Unlikely	2	4	6	8	10
3	Occasional	3	6	9	12	15
4	Likely	4	8	12	16	20
5	Expected	5	10	15	20	25

Severity Score Description	
1	Minor Injuries/inconveniences. Employee can continue to work - Short term local damage
2	Minor Injuries. Operative requires first aid treatment. Stops work - Medium term local/short term regional damage.
3	Reportable/LTI or illness - Long term local/regional damage
4	Major injury or illness with long term effects - Long term widespread damage
5	Fatalities - Widespread permanent damage

Risk	Action Required
Low	Check that no other risks can be eliminated by modifications of design then proceed with design. Record residual risks
Medium	Reduce risks as far as reasonably practical. Consider alternative design or construction method. If alternatives are not available, specify precautions to be adopted. Record residual risks.
High	Seek alternative solutions. If alternatives are not available, specify precautions to be adopted & advise Senior Management & Supervisor (if appropriate). Record residual risks
Examples of Persons at Risk	Inexperienced
	Vulnerable Road Users (VRU's) including Public, Cyclists, Horse riders.
	Lone workers (LW)
	Operative (OP) (TMO or/and Ganger)
	Site Personnel (SP)
	All

10.6 Risk Scoring Methodology & Risk Assessment Environmental

Category	Control	Severity Score				
Likelihood	**Description**	**1**	**2**	**3**	**4**	**5**
1	High degree of control	1	2	3	4	5
2	Medium degree of control	2	4	6	8	10
3	Moderate degree of control	3	6	9	12	15
4	Slight degree of control	4	8	12	16	20
5	Negligible degree of control	5	10	15	20	25

Severity Score Description	
1	All aspects fully controlled or have negative effect upon the environment
2	Aspects exist at recognisable levels, which may impact on the environment; but any change is easily recoverable with no lasting effect
3	Will have an effect on the environment - Damage is short term and is always recoverable
4	Major Impact - Damage is not permanent, but may take some time to remedy
5	High Impact - Risk of severe environmental damage

Risk	Action Required
Low	Low impact identified - Control measure to be adopted and monitored
Medium	Medium impact identified - Ensure that the aspect & impact assessment is reviewed, further controls may be necessary
High	High impact identified - Re-evaluate the aspect & impact assessment and develop / determine greater controls
Examples of Receptor	Air (A)
	Land (L)
	Water (W)
	Natural Resources (NR)
	Community/Residence/Pedestrians (CRP)
	Operative (O)
	Ecology /Habitat (EH)
	Carbon Footprint (CF)

Key Environmental Issues	
Local effects of Pollution (air quality, noise, waste, lighting, odour	Carbon emissions and greenhouse effect global warming
Water source and ocean Pollution	Deforestation, soil erosion and land quality
Material resources & Land despoliation, supply chain issues & inequal disruption to impacts	Energy Supplies, innovations in food and fuel
	Agricultural issues arising from global trade

Hazard(s)	At Risk	Risks	PRE-RCM Risk score (L x S)				Risk Control Measures	POST-RCM Risk score (L x LS)			
			Likelihood	Severity	Risk Score	Risk Level		Likelihood	Severity	Risk Score	Risk Level
Poor Housekeeping	I, TMO	Cluttered or untidy charging areas increase the likelihood of slips and trips.	4	3	12	M	a. Maintain a clean and organised charging area. b. Weekly Walk around checks to be carried out on regular housekeeping. **c.** Tools and equipment to be stored away correctly	1	3	3	L
Footwear	TMO	Inappropriate footwear, such as shoes without adequate grip, can increase the likelihood of slips.	4	3	12	M	a. Non-slip, protective footwear to be used for all personnel in the charging area. b. Weekly checks of the condition of flooring and footwear requirements.	1	3	3	L
Insufficient Lighting	TMO	Poor visibility in the charging area can make it difficult to spot hazards.	4	3	12	M	a. Adequate lighting is to be in place in the charging area. b. Weekly checks to be carried out and maintain lighting systems to be maintained.				L

Wet or Oily Surfaces	I, TMO	Water or oil spills in the charging area create slippery conditions.	**4**	**3**	**12**	**M**	a. Use non-slip flooring or mats in the charging area. b. Promptly clean any wet or oily surfaces. c. Display warning signs when cleaning is in progress.	**1**	**3**	**3**	
Chemical Spills/Leakage	I, TMO & SP	Leaking or spilled battery acid (sulfuric acid in lead-acid batteries). Release of hydrogen gas during charging, which is flammable and poses an explosion risk. Direct contact with corrosive chemicals during a slip can cause burns or skin damage.	**4**	**3**	**12**	**M**	a. Battery Charging area to be well ventilated. b. explosion-proof equipment, c. No smoking or naked flames within the vicinity of the charging area. d. Spill kits are to be available for the chemical involved e. Clean spills immediately using neutralizing agents. f. Personnel to be trained and competent to use the batteries, g. Containment trays to be used for leaking batteries h. Gloves, goggles, and acid-resistant clothing for handling batteries.	**1**	**3**	**3**	**L**

Electrical	I, TMO & SP	Overcharging, causing battery overheating or failure. Faulty connections or exposed wires leading to electric shock or fire. Cables from charging equipment can create trip hazards if not managed properly	**4**	**3**	**12**	**M**	a. Weekly inspections to be undertaken by the Depot Manager/Yard Person on battery terminals and connections. b. Insulated tools are to be used when maintaining batteries c. Training is required for those working with the batteries d. Cable management systems is to be used to keep pathways clear. e. Use visible warning signs to highlight cable locations. f. Route cables away from high-traffic areas.	**1**	**3**	**3**	**L**
Fire	I, TMO & SP	Accumulation of flammable gases without adequate ventilation. Use of incompatible or malfunctioning chargers.	**4**	**3**	**12**	**M**	a. Battery charging area to be well ventilated. b. Fully charged batteries are removed from the charging unit c. Battery charging units are to be turned off overnight d. Battery Charging area to be clean and tidy at all times	**1**	**3**	**3**	**L**

							e. No waste receptacles to be near or in the Battery Charging area f. Clearly mark the charging area with warning signs (e.g., "Flammable Gas," "Wear PPE").				
Physical	I, TMO & SP	Heavy batteries leading to manual handling injuries. Falling batteries or equipment.	**4**	**3**	**12**	**M**	a. Lifting aids are to be used for transporting batteries b. Personnel are taken through Manual Handling on induction c. Batteries are not to be stored or charged more than waste height	**1**	**3**	**3**	**L**
Ergonomic	I, TMO & SP	Poor layout causing awkward postures or repetitive movements.	**4**	**3**	**12**	**M**	d. Battery charging area to be set out so that there is adequate space for moveability. e. No batteries are to be stored/kept above waist height.	**1**	**3**	**3**	**L**
Environmental Risk											

Disposal of Waste	All	Failure to follow waste hierarchy Failure to comply with Duty of Care Avoidance of disposal of waste Local effects of Pollution (air quality, noise, waste, lighting, odour) Water source and ocean Pollution, Waste and International waste trade Deforestation, soil erosion and land quality, Biodiversity loss	2	3	6	M	a. Waste that is generated from this operation is to be brought back to the depot if on site to dispose of within the waste receptacles. b. Any waste generate at depot level needs to be disposed of correctly using the correct waste receptacles c. A Contractor GoGreen manages waste. d. Reports are generated by the QHSE Manager and reported on at the Senior Management QHSE meetings e. Weekly walk around checks are carried out within the depots to ensure waste is in the correct areas	**1**	**3**	**3**	**L**