Dust and Emissions Management Plan

Techemet Permit Variation Application

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Site	Techemet Ltd, Tamworth, England

Contents

1. Purpose and scope

This Dust and Emissions Management Plan describes how Techemet Limited will prevent, minimise and manage potential dust and particulate emissions associated with its permitted waste activities at Tamworth. This document draws together the key control measures and operating techniques which are included in the permit variation supporting documents into a standalone plan.

The scope of this plan is focused on dust, fine particulate matter and associated particulate-bound material that could arise from handling, cutting, sorting, grading, sampling, blending, repackaging or movement of the high value and precious metal bearing waste handled by Techemet such as automotive catalytic converters and catalyst powders.

Summary of key points:

- No external treatment of waste is undertaken.
- No external storage of waste is undertaken the exception of clean scrap metal, general waste and recyclables.
  - These wastes are all stored in covered skips/containers
  - The external site areas drain to a class 1 interceptor
- Dust risk activities are undertaken within enclosed buildings and are controlled at source using local exhaust ventilation (LEV), primary filtration and HEPA filtration.
- The LEV and filtration systems discharge cleaned air back into the internal building environment rather than externally.
  - There are no channelled emissions to atmosphere from the permitted waste operations
- The scope of this plan is proportional to high levels of controls in place as summarised above

2. Site and operational overview

Techemet operates a specialist precious metal sampling and recovery facility operated under permit EPR/CB3006CW.

The site is not operated as a typical scrap metal facility as operations are designed to accurately process, sample and recover high value and precious metal bearing wastes, including automotive catalytic converters and comparable catalyst or metal-bearing materials.

The proposed variation increases the operational footprint and throughput, including Unit 10 and a warehouse extension. The variation does not introduce any different waste processes it is just an increases to the storage area and amount of processing being carried out – an expansion of activities not a change of activities.

The main dust-relevant operations remain mechanical and physical in nature: receipt, inspection, sorting, grading, cutting, separation of catalyst fractions, sampling, blending where applicable, repackaging and preparation for dispatch.

All material processing and sampling activities with potential to generate dust are carried out inside the enclosed buildings.

Larger vehicles may be received in the rear yard for initial inspection, offloading and labelling before material is moved into the facility.

Activity area	Dust relevance	Primary controls
Receipt and initial inspection	Low. Containers inspected and labelled before movement to internal areas.	Managed receipt area, limited duration, no external treatment, rapid transfer indoors.
Sorting, counting and grading	Potential dust release from catalyst materials and residues.	Indoor operation, defined work areas, LEV (Primary filtration and HEPA) where dust can be generated, housekeeping, storage in in containers once graded
Cutting, shearing, plasma cutting and bandsaw activities	Potential release of catalyst powder, fine particulates and refractory ceramic fibre.	Source capture by LEV (Primary filtration and HEPA) internal discharge and maintenance controls.
Sampling and processing plant	Potential release of fine particulate during crushing, milling, screening, splitting and bagging.	Enclosed plant interfaces where applicable, LEV (Primary filtration and HEPA) where dust could be released , controlled bagging, housekeeping and recorded maintenance.
Blending and repackaging	Potential particulate release while transferring compatible solid materials.	Indoor operation, closed or controlled transfer where practicable, LEV (Primary filtration and HEPA). Housekeeping and cleaning
Dispatch	Low. Material is collated and loaded for onward recovery.	Packaged material, controlled loading, dock leveller same level loading direct into cargo unit from the building

3. Environment Agency guidance and DEMP requirements

The Environment Agency guidance on controlling and monitoring emissions states that states that if dust-relevant activities are carried out inside a building, the dust and emissions management plan may need significantly less detail where the building and abatement provide a proportionate level of control.

This plan therefore follows a risk-proportionate structure. It identifies the relevant receptors, emission sources, pathways, abatement systems, accountability, inspections, complaint response and review arrangements, but it does not propose routine boundary PM10 monitoring as a primary control because there are no external waste treatment or storage activities and the credible dust sources are controlled indoors by LEV and HEPA filtration.

DEMP requirement	How addressed in this plan	Summary
Site introduction and operations	Sections 1 and 2 summarise the site and dust-relevant activities.	Techemet operate a specialist precious metal sampling and recovery facility.
Local sensitive receptors	Section 5 identifies receptor categories and requires receptor review.	Nearby industrial, commercial and any residential/community receptors identified from site plans and ERA.
On-site emissions sources	Sections 4 and 5 identify credible dust and particulate sources.	Dust risk is associated with indoor cutting, grading, sampling and handling.
Abatement and accountability	Section 6 identifies LEV, primary filtration, HEPA filtration, maintenance and responsible roles.	Source capture with clean air returned internally.
Complaints and community contact	Section 8 defines complaint recording, investigation, corrective action and escalation.	Managed through the EMS corrective action process.
Monitoring arrangements	Section 7 defines inspections, LEV checks and trigger actions.	Routine boundary PM10 is not proposed unless triggered or required.
Source, pathway, receptor approach	Appendix A presents the dust source, pathway, receptor assessment.	Primary pathway is interrupted by enclosure, source capture and filtration.

4. Dust and emissions risk summary

The site Environmental Risk Assessment identifies dust caused by the escape of catalyst powder and refractory ceramic fibre during grading, platform activities, plasma cutting, bandsaw and sampling or testing as the principal dust-related environmental hazard.

To mitigate this the site uses LEV and air management systems linked to primary filtration and HEPA filtration. Air is captured at source, filtered and returned to the internal building environment. therefore there are no channelled emissions to air from the waste management activities.

Risk source	Potential consequence	Existing / proposed control basis	Residual risk
Catalyst powder and fine particulate release	Visible dust, soiling, local air quality impact, complaint potential.	Indoor processing, LEV, dust collection, primary filtration, HEPA filtration, maintenance and housekeeping.	Low with controls. Continue existing controls and review after incidents or change.
Refractory ceramic fibre release	Potential particulate exposure and off-site concern if uncontrolled.	Indoor cutting and segregation, source capture, trained operators, cleaning and controlled packaging.	Low with controls. Maintain LEV and housekeeping standards.
Dust from internal floors and work areas	Potential re-suspension during movement or cleaning if not controlled.	Routine housekeeping, ride-on floor sweeper, spill recovery and defined work areas.	Low with good housekeeping.
Vehicle movement and idling	Vehicle exhaust and potential track-out from external paved yard.	Scheduled arrivals, supervised unloading/loading, paved surfaces and limited external activity.	Low. Manage idling and keep yard clear.
Abatement failure	Increased internal dust, possible escape through doors if not corrected.	Pre-use checks, pressure gauge response, maintenance, filter change, LEV statutory examination and corrective action.	Controlled by shutdown or restriction of affected activity until corrected.

5. Sources, pathways and receptors

5.1 Sources

Dust and particulate sources are limited to activities that disturb catalyst material, ceramic fibre, metal-containing dusts or residues. Sources include cutting, sorting, grading, blending, sampling, bagging, filter handling, cleaning, abnormal spillages and abatement malfunction.

No external waste treatment or external waste storage is included as a source because these activities are not carried out.

5.2 Pathways

The main theoretical pathway is airborne movement from a dust-generating activity to a building opening and then beyond the site boundary. This pathway is interrupted by enclosure, source capture, filtration and internal discharge. Secondary pathways include dust transfer on floors, containers, packaging or vehicles, and abnormal release during filter handling or spill response.

5.3 Receptors

The site is within an industrial and commercial setting and receptors include site staff, contractors, visitors, neighbouring industrial or commercial premises, any nearby residential receptors, road users and environmental receptors identified through the permit application risk assessment.

Receptor group	Potential impact if uncontrolled	Primary prevention route	Monitoring / review
Site staff, contractors and visitors	Visible dust or exposure to particulate matter.	LEV, HEPA filtration, defined operating procedures, PPE and training.	Internal inspections, LEV checks, occupational controls and incident reporting.
Neighbouring commercial and industrial premises with the nearest being ~25 m west of the site	Dust deposition, soiling or complaint.	No external treatment or storage, LEV, HEPA filtration, enclosed activities and rapid response to abnormal conditions.	Perimeter visual checks, complaint log and corrective action.
Nearby residential & community receptors. With the nearest homes being ~35m east of the site	Nuisance dust, perceived air quality impact or complaint.	Indoor processing, LEV, HEPA filtration, no residual external dust sources from waste activities.	Complaint response, management review and update of DEMP as required
Surface water drains and yard areas	Dust or residues mobilised in runoff if material escapes externally.	No external treatment, rapid transfer indoors, LEV, HEPA filtration, impermeable surfaces and interceptor drainage.	Yard inspections, spill response, drain/yard maintenance controls. Tele-stopper to seal site drainage, Class 1 interceptor
Environmental receptors. Nearest designated site Dosthill Park (LNR) ~500 west of the site	Potential particulate deposition if uncontrolled and transported off site.	No external treatment or storage, enclosed activities, LEV, HEPA filtration, and rapid response to abnormal conditions.	Risk assessment review and incident investigation.

6. Control measures and abatement

6.1 Design and process controls

- Operations that could generate dust or fine particulate are carried out inside enclosed buildings.
- Dusty activities are carried out in defined process areas using dedicated equipment fitted with LEV systems.
- Materials are handled in containers, FIBCs, drums, cages, stillages or other appropriate packaging where practicable.
- There is no external treatment or external storage of waste other than general waste/recycling and clean scrap metal which are covered to prevent rain water ingress.
- External receipt is limited to offloading, initial inspection, labelling and transfer into the facility.
- Waste acceptance, traceability and internal movements are controlled through site procedures and IT records.

6.2 LEV, primary filtration and HEPA filtration

The principal engineering control is local exhaust ventilation. LEV is installed at or close to dust-generating sources such as cutting, sorting, sampling and processing plant. Extracted air passes through primary filtration, such as bag or cartridge filtration, and then through HEPA filtration. Cleaned air is then returned to the internal building environment. This arrangement captures valuable metal-bearing dusts in the filter systems which are sent for recovery and avoids an external channelled emission from waste operations.

Control element	Purpose	Inspection / maintenance expectation	Action if defects found
LEV hoods and capture points	Capture dust at the point of generation.	Pre-use visual check, operator awareness and routine maintenance.	Stop or restrict affected dust-generating activity until capture is restored.
Primary filters	Remove coarser particulate and protect HEPA filter integrity.	Pressure gauge monitoring, filter change when limit reached and service records. Servicing in accordance with maintenance schedule.	Change filter and inspect for damage, blockage or incorrect fitting.
HEPA filters	Polish extracted air to remove fine particulate before internal discharge.	Routine inspection and replacement and servicing in accordance with maintenance schedule.	Restrict affected activity and replace or repair filter as required.
Internal discharge	Avoid external channelled air emission from waste operations.	Confirm discharge arrangement remains internal and unobstructed.	Investigate any change or damage before operation continues.
Mobile LEV where used	Provide local capture for flexible or temporary arrangements.	Pre-use check, appropriate positioning and maintenance.	Reposition, repair or cease activity if capture is inadequate.

6.3 Housekeeping and material control

- Good housekeeping reduces the volumes of dust build up and reduces tracking of dust across the facility. Further more due to the high value nature of materials handled good housekeeping and capture of dust represents best practice from an environmental and commercial perspective
- Dusts and residues are recovered promptly to prevent re-suspension, loss of valuable material or transfer outside the process area.

- Work areas are cleaned using suitable methods, including the electrically powered floor sweeper where appropriate.
- Dry sweeping of fine dust should be avoided where it could make dust airborne and vacuum methods are preferred
- Spillages of catalyst powder, RCF or other dusty material are treated as an abnormal event and cleaned immediately using suitable containment and recovery methods.
- Packaging and containers are kept closed when not being actively filled, emptied or inspected.

6.4 Vehicle and yard controls

- Vehicle arrivals are scheduled and supervised to minimise waiting, congestion and idling.
- Yard activities are limited to receipt checks, labelling and transfer.
- External hardstanding is maintained in a condition suitable for inspection and cleaning.
- Visible accumulations of debris, dust, mud or litter are removed promptly.
- Waste stored externally is limited to general waste/recycling and clean scrap metal in covered containers to prevent water ingress
- Doors are managed to minimise unnecessary openings during dust-generating processes.

7. Monitoring, inspections and trigger actions

Monitoring is based on operational control, abatement performance and visible emissions checks. This is proportionate to the enclosed nature of the site activities and lack of external channelled emissions from waste operations.

Item	Frequency	Responsible person	Record	Trigger action
Visual check of work areas for dust/residue accumulation	Daily and during operations	Shift supervisor / area operator	Daily inspection or Tech Check record	Clean area and investigate source if accumulation is unusual.
LEV pre-use observation and capture condition	Before relevant operation and during use	Operator	Pre-use / operational checks	Stop or restrict activity if capture is poor or system fault indicated.
Filter pressure / system status checks	In accordance with procedure and equipment requirements	Maintenance / responsible person	GEN409 or maintenance record	Change filters or arrange service when maximum limit or abnormal readings are reached.
LEV statutory examination and servicing	As legally required and in accordance with service schedule	Approved contractor / maintenance lead	LEV service report and register	Complete remedial actions and restrict affected plant where required.
External yard housekeeping and visible emissions check	Daily during operational periods	Site supervisor / designated operative	Inspection record	Clean yard, review cause and escalate if repeated.
Complaint and incident review	On receipt / occurrence	Site management	Complaint record, GEN147 and GEN397 as applicable	Investigate root cause, implement corrective action and review procedure.
Boundary dust monitoring	Not routine under normal controlled operation	Site management if triggered	Monitoring record if deployed	Deploy temporary monitoring if requested by EA, after substantiated complaint, or after material change.

7.1 Weather and high wind conditions

Because dust-relevant processing is carried out inside buildings, weather is not a primary determinant of dust control. However, wind direction and high wind conditions can increase the consequence of any abnormal release through doors or from yard debris. During high winds, the site will minimise unnecessary door opening, confirm yard housekeeping, avoid non-essential external handling and prioritise rapid transfer of received material indoors.

8. Complaints, abnormal events and corrective action

Any dust, particulate, visible emission or complaint will be recorded, investigated and closed out through the EMS corrective action process. The investigation should identify whether the complaint is linked to Techemet activities, another local contributor, weather conditions, abnormal equipment performance or a housekeeping failure.

1. Record the complaint or observation, including date, time, location, weather conditions, complainant details if available and description of the alleged impact.
2. Inspect relevant work areas, LEV systems, filters, doors, yard surfaces and recent movements or activities.
3. Check whether any alarms, pressure gauge limits, maintenance issues, spills, abnormal activities or complaints occurred during the relevant period.
4. Implement immediate controls, such as stopping the affected activity, cleaning, closing doors, repairing LEV, changing filters or isolating the affected plant.
5. Complete root cause analysis and corrective action documentation using the site corrective action process, including GEN147 and GEN397 where applicable.
6. Review whether procedures, training, maintenance frequency or inspection arrangements need amendment.
7. Respond to the complainant and/or Environment Agency as required by the permit and EMS procedures.

Event	Immediate action	Follow-up action	Escalation
Visible dust escaping a process area	Stop or restrict affected process, check LEV capture and close unnecessary doors.	Clean affected area, check filters and document cause.	Site manager and maintenance lead.
LEV or filter alarm / pressure limit	Cease affected dust-generating operation if capture or filtration is compromised.	Change filter, service equipment and confirm effective operation.	Maintenance lead and site manager.
Spill of catalyst powder or dusty material	Contain and recover material immediately using suitable methods.	Investigate cause and review handling method.	Shift supervisor and site manager.
External dust complaint	Inspect site, check recent activities, weather and possible external contributors.	Record investigation, corrective action and response.	Site manager, EMS responsible person and EA if required.
Repeated housekeeping findings	Clean area and reinforce operator controls.	Review cleaning frequency, training or process layout.	Site manager.

9. Roles, competence, records and review

Role	Key responsibilities	Evidence / records
Site management	Overall accountability for implementation of this plan, ensuring corrective actions are completed and ensuring resources for maintenance and training.	Management review, corrective action register, procedure updates.
Shift supervisors / area leads	Day-to-day control of housekeeping, process discipline, visible emission checks and response to abnormal conditions.	Inspection records, shift records, Tech Check entries.
Operators	Operate equipment in accordance with instruction, use LEV, report defects, prevent unmanaged spills and keep work areas clean.	Training records, competency assessments, pre-use checks.
Maintenance / approved contractor	Maintain LEV, filters, plant and equipment, complete service examinations and remedial actions.	GEN409, service reports, maintenance records.
EMS / compliance lead	Maintain the plan, review complaints and incidents, ensure compliance with permit and EMS requirements.	Plan review record, audit findings, EMS records.

Records supporting this plan should be retained within the EMS and made available for inspection where required. Relevant records include LEV service records, filter change records, daily or periodic inspection records, housekeeping checks, training and competence records, complaints, incidents, corrective actions and management review records.

This plan will be reviewed at least annually, following any material change to operations, following a substantiated complaint, following an incident or abnormal release, following a significant change in site layout or process equipment, or if required by the Environment Agency.

Appendix A: Source, pathway, receptor assessment

Source	Pathway	Receptor	Control measures	Residual assessment
Grading and sorting of catalyst materials	Internal airborne dust and transfer to building openings if uncontrolled	Staff, visitors, neighbouring premises	Indoor operation, LEV, HEPA filtration where required, housekeeping and defined work areas	Low with controls
Plasma cutting, bandsaw and shearing	Dust/fume/particulate generation at cutting point	Staff and off-site receptors if release escaped building	Source capture, filtration, trained operators, door control and maintenance	Low with controls
Sampling, crushing, milling, screening and bagging	Fine particulate from processing equipment	Staff, neighbouring premises, environmental receptors	LEV, enclosure where applicable, primary filtration, HEPA filtration and controlled bagging	Low with controls
Blending and repackaging	Dust release during transfer or pouring	Staff and local receptors if uncontrolled	Indoor operation, controlled handling, LEV, HEPA filtration, compatible material control	Low with controls
Filter handling and maintenance	Release of captured dust during removal or change	Staff and local receptors if uncontrolled	Trained maintenance, suitable containment, waste recovery route and housekeeping	Low with controls
External yard receipt and vehicle movements	Track-out, vehicle exhaust, wind disturbance of debris	Neighbouring premises, road users, surface water drains	No external treatment. Limited external storage in covered containers, paved hardstanding, supervised movements, limited idling and cleaning	Low
Abnormal spill of catalyst powder	Airborne dust or transfer to drains/surfaces	Staff, receptors and surface water route	Immediate containment and recovery, no internal surface drainage for process areas, spill procedure. Telestopper to seal external drainage.	Low after response

Appendix B: Example operational inspection checklist content

Check	Yes / No / NA	Action required	Initials / date
No visible dust escaping from process equipment or work areas.			
LEV operating and capture appears effective at active dust-generating processes.			
Filter pressure/system indicators within acceptable operating range.			
No abnormal dust build-up on floors, equipment, containers or ledges.			
Work area floors cleaned and residues recovered as required.			
Containers/FIBCs/drums closed or controlled when not in active use.			
No external treatment or external waste storage occurring.			
Yard, access routes and loading areas free from visible dust, mud, litter and debris.			
Doors closed when not required for access or material movement.			
Any dust complaint, spill, equipment defect or abnormal event reported and recorded.			

Appendix C: Dust and emissions trigger action plan

Trigger	Potential cause	Immediate controls	Investigation	Preventive action
Visible dust in work area above normal background	LEV ineffective, poor housekeeping, spill or abnormal material	Stop or restrict source activity and clean area	Check LEV, filters, operator method and recent material handling	Repair, retrain, adjust method or increase cleaning frequency
Visible dust leaving building or affecting yard	Door open during dusty activity, abnormal escape or housekeeping failure	Stop activity, close doors and inspect source	Review process timing, door management and abatement status	Revise door/process controls and brief operators
Abatement fault, alarm or pressure limit	Blocked filter, damaged filter, fan fault or duct blockage	Cease affected operation if control compromised	Inspect system and review maintenance records	Service equipment, replace filter and record action
Dust complaint received	Site activity, local third-party activity or weather-related concern	Inspect site and record conditions	Compare activity log, weather, housekeeping and abatement records	Close corrective action and update plan if needed
Repeated inspection non-conformance	Controls not embedded or insufficient frequency	Clean and correct immediate issue	Review responsibility, competence and inspection regime	Update procedure, training or maintenance schedule