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GOVERNMENT OF DUBAI

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Dubai Municipality

Technical Guidelines on Non-Metal Waste Collecting & Processing

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Waste Strategy and Projects Department
Dubai Municipality

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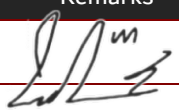
1.0		Waste Strategy and Project Department Head	

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LIST OF ABBREVIATIONS & DEFINITIONS

AESEAS	Environment Sustainability and Environmental Assessment Section
DET	Department of Economy & Tourism
DM	Dubai Municipality
EC	Environmental Clearance
MRF	Material Recovery Facility
MSW	Municipal Solid Waste
NOC	No Objection Certificate
OHSMS	Occupational Health and Safety Management System
PPE	Personal Protective Equipment
RTA	Roads and Transport Authority
UN	United Nations
WDS	Waste Disposal Service
WSPD	Waste Strategy and Projects Department
WTS	Waste Treatment Section
Disposal	Refers to any or combination of the following means or processes where waste is subjected to or rendered for: • Direct tipping into landfill; • Incineration, burning or combustion in a controlled manner for the purpose of getting rid of waste material; • Final deposit at any DM waste treatment complex or landfill; The process of segregation and recovery of the materials for the purpose of recycling or reuse is not considered a disposal
Disposal Site	The site with defined area and boundaries is intended as the final depository of waste. It may be a final depository site of a lined or unlined landfill or any dedicated facility for waste treatment. In the case of waste intended for export, the name of the receiving state or locality shall be referred to as the disposal site.
Non-hazardous waste	is a waste or mixture of wastes that does not pose a substantial threat to public health or the environment and is safer to handle, store, and dispose of compared to hazardous waste. However, it can be harmful to the environment if left untreated. This category includes everyday household items like food waste, paper, cardboard, plastics, glass, metals, and textiles, as well as non-toxic industrial waste, uncontaminated construction and demolition debris, organic waste like yard trimmings and agricultural residues, and certain electronic waste.
Non-Metal Waste	Non-metal recoverable materials include paper, cartons, plastic, fabrics, wood, or other similar materials
Landfill	An area generally used for the disposal of solid wastes by burial. It is either an ordinary unlined landfill or an engineered landfill with basal lining of an impervious material and fitted with a leachate collection system
MSDS	Material Safety Data Sheet –a document that contains information on the hazard evaluation of the use, storage, handling, and emergency procedures related to that material.
RASID	Dubai Municipality has introduced the RASID waste management monitoring system to regulate operations of registered waste

	management companies by streamlining and monitoring waste management transportation and associated activities – from collection through transit and till disposal, from analysis review to end-user solutions and by controlling illegal and unauthorized dumping practices.
Unwanted material	Any material/goods declared by their owner to be unwanted and require disposal, or of which a decision for their destruction/ disposal is issued by a competent authority, or that proper disposal requires special care
Treatment (of waste)	An induced change, normally carried out in a treatment facility, in the physical or chemical composition of the waste so as to make it less hazardous, less in volume, and acceptable for final disposal
Waste	Any material disposed of because it is no longer needed. It includes general wastes, hazardous wastes, difficult wastes, and other wastes as classified by the Waste Management Department.
Waste Generator	Any person or party who produces the waste material and/or the Occupier and/or Owner of the premises or facility where the waste is generated. The waste generator is also the “Owner of waste.”
Waste Collection	Collection within the meaning of this guideline is the loading, transport & any interim storage of waste for the purpose of transportation to a waste disposal and/or treatment plant.

1 INTRODUCTION

In general, this guideline underscores adherence to the specified legal and regulatory framework, ensuring that Non-Metal Waste Collecting & Processing is conducted in compliance with established laws, circulars, and guidelines. This serves to standardize practices across the industry, promoting sustainable waste management practices, safeguarding public health, and preserving the environment within the Emirate of Dubai.

The guideline encompasses detailed operational procedures, safety protocols, contractual obligations, and permit requirements to ensure that waste management practices are conducted responsibly and sustainably within Dubai. Hence, this Technical Guide is intended to deliver:

a) General provisions such as mandatory training for all personnel involved in Non-Metal Waste handling and recycling,
b) Non-Metal Waste recycling provisions and permitting requirements,
c) Procedures and requirements of Non-Metal Waste and their operators.
d) Specific requirements to operate a Material Recovery Facility (including Non-Metal Waste) within Dubai.

Sample forms and permits are presented in the Annexes.

2 LEGAL FRAMEWORK, CIRCULARS, AND GUIDELINES

The relevant provisions of the following laws and regulations were used as guidance and references in the preparation of this technical guideline.

- Circular No. (1) of 2020 On the Comprehensive Inventory of the Recyclable Waste Data in the Emirate of Dubai
- Federal Law (No.) 24 of 1999 and modified by Federal Law (No.) 11 for 2006 regarding Protection & Development of the Environment.
- Local Order No. 11 of 2003 on Public Health and Safety of the Society in the Emirate of Dubai
- Local Order (No.) 61 of 1991 on the Environment Protection Regulations in the Emirate of Dubai
- Local Order (No.) 7 of 2002 on Management of Waste Disposal Sites in the Emirate of Dubai; as amended by Local Order No. (5) of 2003
- Executive Council Resolution (No.) 58 of 2017 Concerning the Approval of Fees and Fines of Waste Disposal in the Emirate of Dubai
- Executive Council Resolution No. (14) of 2015 Amending the Schedule of Public Hygiene-related Violations and Penalties Attached to the Implementing Bylaw of Local Order No. (11) of 2003 Concerning Public Health and Community Safety in the Emirate of Dubai
- Procedures and guidelines for implementing and implementing Administrative Order No. 30/2003, in accordance with Local Order No. 11/2003
- UAE Occupational Health and Safety Management System (OHSMS) National Standard
- Technical Guideline No. 4. on Duty of Care
- Technical Guideline No. 5. on Waste Classification
- Technical Guidelines (97) for Personal Protective Equipment – Foot Protection HSE from the Health & Safety Department
- Technical Guidelines (98) for Personal Protective Equipment – Hand Protection HSE from the Health & Safety Department
- Technical Guidelines (99) on Safety Signs at Work from the Health & Safety Department
- Technical Guidelines (59) for Personal Protective Equipment – Eye and Face Protection HSE from the Health & Safety Department
- Technical Guidelines No 6. Commercial Centers Waste Prevention & Recycling
- Technical Guidelines on Waste Plastic Trading Activity
- Technical Guidelines on Recycled Plastic Materials Manufacturing
- Technical Guidelines on Wastepaper Trading

The related circulars and posted information bulletin of this guideline are posted on Dubai Municipality's website – www.dm.gov.ae link to the Waste Department.

The Duty of Care Program is a management tool that controls the waste generated in Dubai. The regulation requires that all transfers of waste are appropriately recorded in order to assist in tracking the quantity generated and movements of waste. Waste treatment & recycling facilities must, therefore, ensure that the required signatures accompany the transfer of waste both into and out of their site and that there is an adequate description (source, quantity, and type) of the waste which contains all the information necessary for safe handling, treatment, recovery, or disposal.

3 SCOPE AND COVERAGE

These Technical Guidelines apply to both waste generators and waste operators involved in activities concerning waste treatment and recycling facilities licensed by the Department of Economy & Tourism (DET) to conduct 3830909 - Non-Metal Waste Collecting & Processing activity in the Emirate of Dubai, including Free Zone Authorities as applicable.

4 WASTE DISPOSAL AND PERMITS FOR NON-HAZARDOUS WASTE

For non-hazardous non-metal waste, which primarily comes from municipal solid waste (MSW), waste generators must utilize Dubai Municipality-approved collectors, transporters, and treatment facilities for collection and disposal. Further details are provided in the Technical Guidelines on Recycled Plastic Materials Manufacturing & Technical Guidelines on Metal Scrap Processing. Commercial establishments generating non-metal waste must provide details of their waste management contracts with Dubai Municipality-approved service providers during the renewal of their licenses. Please refer to Technical Guidelines No. 6. Commercial Centers Waste Prevention & Recycling for further information.

For other unwanted materials or wastes that do not fall under the above category, an online permit procedure should be followed if they are non-hazardous.

The procedure for securing an online permit for the treatment and recycling of unwanted or other such waste materials must be conducted through the DM

Waste Treatment Section (DM-WTS) by requesting a Permit of Waste Disposal through the Waste Disposal Service (WDS) to send the waste materials to a DM-Accredited Recycler or a facility operated by DM as shown in Annex 1: Request for Permit of Wastes Disposal. The WDS can be accessed at the Dubai Municipality's website – hub.dm.gov.ae - upon login with a UAE Pass/ User Management ID and password.

The WDS system conveniently allows applicants to file disposal requests 24/7, view request status, and print the WDS upon approval, including online payment of disposal charges. The following steps summarize the process of applying for an online WDS:

1. **The Waste Generator logs in using Google Chrome at hub.dm.gov.ae as a business with UAE pass/DMUM ID and clicks on "Apply for Service" - "Request for Permit of Wastes Disposal (Hazardous/ Recyclable/ Unwanted Materials)" and chooses "New Permit"** with all the necessary attachments for each type of waste as will be described in the next sections.
2. **File attachments should be in PDF format.** (Ex. BL.pdf, photos.pdf)
3. **Total amounts of waste to be declared in the disposal request shall be in metric tons with the estimated quantity for the wastes that have been accumulated**, including the estimated waste amount to be sent to the facility during the validity period of the permit (three months from the date of issuance).
4. **The applicant will be informed through e-mail and SMS** once the application is approved by the WDS system.
5. **The exact address of the facility where waste is generated and stored shall be specified in the waste location details** in the application.
6. The **"Permit of Disposal/Destruction" can be obtained by logging in to the WDS account and clicking "Download Permit".**
7. The payment (amount in AED) **can be paid by an approved transporter with a valid NAFITH (smart gate) and RASID (GPS) account in DM-designated or accredited sites & facilities.**
8. Alternatively, **the fee can be paid by the owner of the waste (waste generator/applicant) who wishes to obtain a "Destruction Certificate" as proof that the waste has been accepted and disposed of at any DM-controlled waste treatment site**. Similar to the permit process, the waste generator/applicant must **log in at hub.dm.gov.ae as a business with UAE pass/DMUM ID. Click "Apply for Service" - "Request for Permit of Wastes Disposal (Hazardous/Trade Wastes/Unwanted Materials",**

choose "Disposal Certificate" in the request Type, select WDS permit on the drop-down list, get details and pay the corresponding fee online.

4.1 Recyclable Unwanted Materials

For **Unwanted Materials intended for recycling** at DM-accredited facilities & recyclers, the following is additionally required:

1. **Additionally, photos of the waste labels, including manufacturing and expiry date;**
2. **Documentary proof of the material is non-hazardous (MSDS/lab test report or published data on the material);**
3. **Application Form for Permit/NOC for Waste Processing/Recycling (Acceptance Letter)** using the format provided by the chosen recycler and as shown in Annex 2. A list of DM-approved recyclers is available on the DM Website, https://www.dm.gov.ae/municipality-business/waste-dept/.
4. A **copy of the WDS permit shall be submitted to the DM-accredited recycler** to set the schedule of transport and to obtain a collection receipt and Destruction Certificate from the recycler for recording[1].
5. After completion of the recycling/reprocessing of recyclable waste materials, **the waste generator/applicant must log in using Google Chrome at hub.dm.gov.ae as a business with your UAE pass/DMUM ID. Click "Apply for Service" - "Request for Permit of Wastes Disposal (Hazardous/Trade Wastes/Unwanted Materials", Choose "Disposal Certificate" in the request Type, select WDS permit on the drop-down list, get details, and upload the recycling certificate**.
6. The DM **Accredited Recyclers are required to submit a monthly Comprehensive Material Recovery Report (MRR)** of the recyclable waste materials being processed by their facility to the Waste Treatment Section (WTS) every second (2) day of every month as per Circular No. (1) of 2020 On the Comprehensive Inventory of the Recyclable Waste Data in the Emirate of Dubai.
7. **Disposal fees are set by the facility operator**.
8. Samples of permits for the disposal of unwanted materials to DM-accredited recyclers can be found in Annex 3.

[1] Note: The applicant must add the remark that they undertake that only the above declared wastes will be sent for recycling and that together with the recycler they will be jointly responsible for the safe handling, recycling, and final disposal of any waste by-product.

5 OPERATORS OF WASTE RECYCLING AND TREATMENT FACILITIES PROVISIONS

The following provisions apply to companies with a valid license for 3830909 - Non-Metal Waste Collecting & Processing activity from DET or any third party engaged through a formal contract and who have attained prior authorization requests on behalf of the contracting party from the WSPD. The decision to accept or reject applications of a similar nature is at the sole discretion of the WSPD.

All facilities must comply with the **Post Environmental Clearance (EC) Compliance Monitoring and Reporting** which involves both Regulatory Monitoring (i.e. primarily site inspection of the facility performed by the DM-Environmental Sustainability department) and as applicable, self-monitoring in the form of Emissions Inventory reporting or submission. Facilities with emission sources are required to submit source descriptions, activity data and pollutant concentrations via the interactive online platform (http://www.dubaiairenvironment.dm.gov.ae/), in accordance with the compliance conditions of the EC. A user account to access the **online platform should be requested by contacting DM- Environment Sustainability and Environmental Assessment Section (AESEAS) via Emission_Inventory@dm.gov.ae**.

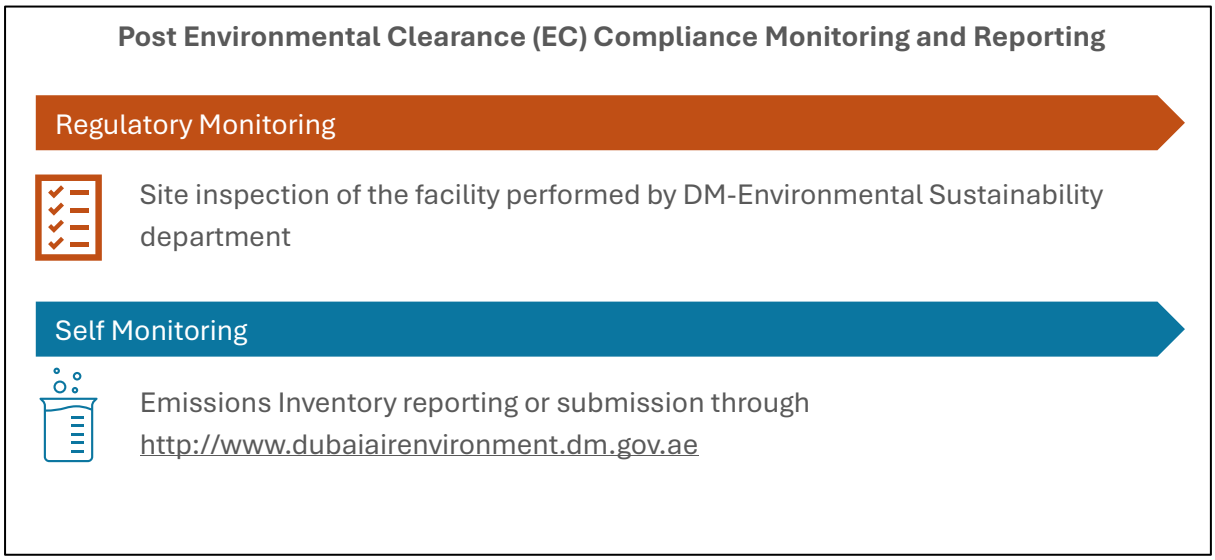

Figure 1 Post EC Compliance Monitoring and Reporting

Moreover, facilities must ensure that any appointed laboratory involved in the monitoring is accredited by EIAC[2], for the specific tests. In Addition, WSPD requires a 3rd party audit annually: waste audit, environmental audit and safety audit.

In alignment with the WDS procedures, and as mentioned previously in section 4, all DM Accredited Recyclers are required to submit a monthly comprehensive MRR of the recyclable waste materials being processed by their facility to the WTS every second (2) day of every month as per Circular No. (1) of 2020 On the Comprehensive Inventory of the Recyclable Waste Data in the Emirate of Dubai.

6 NON-METAL WASTE PROCESSING

6.1 General Provisions

During the operation of a non-hazardous non-metal waste processing, it is imperative to ensure that the following key points are adhered to.

6.1.1 Waste Receipt, Unloading, Processing, and Storage

- Ensure receipt of non-metal waste from permitted traders by DM. Please refer to the Technical Guidelines on Waste Plastic Trading Activity & Technical Guidelines on Wastepaper Trading.
- Visually inspect incoming waste loads to identify and sort different types of paper and cardboard materials, such as mixed paper, newspaper, office paper, and corrugated cardboard. Utilize manual inspection methods or RFID tagging systems to assist in accurate sorting.
- Weigh all incoming and outgoing paper and cardboard waste accurately using calibrated scales. Keep meticulous records of the quantity and type of paper materials received and processed. These records should be readily available for audits and inspections by regulatory authorities.
- Proper weighing scales must be available at the facility, and calibration certificates must be maintained for inspection.
- If bulk transport is used, maintain suitable weighbridge receipts for all inward and outward movements.
- The facility should be equipped with an ANPR (Automatic Number Plate Recognition) system connected to Dubai Municipality.
- The facility should have CCTV cameras installed.

[2] List of Accredited Laboratories: https://eiac.gov.ae/directory

- Identify and segregate paper and cardboard waste contaminated with hazardous substances, such as chemicals or oil residues. Contaminated materials must be managed according to hazardous waste regulations and treated or disposed of appropriately.
- Analyze suspected hazardous materials before acceptance so that they are segregated relative to compatibility and so that they can be adequately treated and disposed of;
- If possible, isolate size reduction equipment (e.g., shredders or grinders) in an explosion-proof area with proper ventilation and pressure relief to reduce the impacts of potential explosions that could be caused by materials that may be present in MSW. Visual inspection of the incoming waste, along with sorting and removal procedures, can minimize this potential hazard;
- Implement safety measures for equipment such as shredders and compactors, ensuring they are located in well-ventilated areas and are explosion-proof if necessary. Proper ventilation and pressure relief systems can help mitigate risks associated with combustible materials.
- Implement good housekeeping procedures;
- Ensure adequate training on the health and safety of the staff according to their activities and responsibility levels;
- Consider the use of enclosed/covered areas for waste tipping, shredding, compacting, and other processes;
- Install catch fences and netting to trap windblown litter.
- A digital process flow diagram of the treatment process must be available
- A mass balance (in %) of all input and output streams must be available
- The final products must only go to licensed off-takers.

6.1.2 Contaminated Run-off

Leachate, resulting from the interaction of waste piles with precipitation and residual liquids within the waste, may comprise organic matter, nutrients, metals, salts, pathogens, and hazardous chemicals. If permitted to migrate, leachate has the potential to pollute soil, surface water, and groundwater, leading to possible repercussions such as eutrophication and acidification of surface water, along with the contamination of water supplies. Suggested approaches for managing contaminated run-off encompass:

- When choosing the site, consider the proximity of waste handling and storage areas to water supply wells for people and animals, irrigation

canals, and surface water bodies that support aquatic life and the ability to prevent contaminated leachate and drainage from entering surface and groundwater;
- Use impermeable materials for roads, waste processing and storage areas, and vehicle washing areas, and install curbs to prevent run-off to permeable areas;
- Collect run-off and leachate from areas used for waste storage, and treat run-off to meet applicable environmental standards before discharge to surface water or the municipal sewage system (e.g., screen to remove large material, install silt traps to remove particulates, and remove separate-phase liquids with an oil/water separator). Discharge to the municipal sewage system (via pipe or tanker truck), where available, is preferred for run-off from waste storage and handling areas;
- Re-use collected water in on-site disposal processes to the extent practical or store with collected leachate awaiting treatment;

6.1.3 Air Emissions

The following measures are recommended to prevent, minimize, and control vehicle emissions and emissions of dust, odors, and bioaerosols during waste receipt, unloading, processing, and storage:

- Design drop-off points to minimize queuing of vehicles;
- Sweep waste management areas and roads frequently
- Use enclosed waste handling and storage areas for malodorous wastes or wastes that may generate hazardous dust (e.g., asbestos). Enclosed waste storage and handling areas are preferred for all wastes;
- Use extraction system to remove dust from working areas, buildings, and storage vessels, and treat as needed to control particulate emissions (e.g., bag filter);
- Use odour-neutralising sprays where necessary;
- Provide respiratory protection equipment to the personnel who require it according to their tasks;
- Use negative pressure in processing buildings and appropriate air filtration (e.g., biofilter) to remove odour.

6.1.4 Noise and Vibration

- Construct a buffer zone between the facility and the external environment or locate facilities away from sensitive receptors;
- Maintain site roads in good condition to reduce noise and vibration from vehicle movements;
- Use acoustic screens around fixed/mobile plant and equipment;
- Select equipment that has low noise emission levels;
- Fit silencing equipment to plant, e.g. baffles/mufflers;
- Use buildings to contain inherently noisy fixed plant equipment (e.g., locate waste shredder in the tipping hall, and enclose tipping hall on all sides) and consider the use of sound-insulating materials in construction.

6.2 MATERIAL RECOVERY FACILITIES

The core of an MRF plant is the sorting line, but this must be supported by ancillary facilities for monitoring, quality control, environmental management, storage and transport, as well as for employee health and safety. Waste sorting plants are industrial installations and require regular maintenance, and this necessity should be planned for both financially (both for maintenance costs and costs of down time) and logistically (management of incoming waste and fulfilling supply contracts during downtime). Technical and operation factors that should be considered when developing and running a waste sorting plant are outlined in the following sections.

Selecting the site for establishing the facility is of crucial importance, namely considering:

- Minimum permissible distance to residential areas (noise, air, traffic pollution);
- Minimum permissible distance to protected areas or critical infrastructure (e.g. sports stadiums, mosques);
- Topography to avoid water run-off in extraordinary circumstances or rain events;
- Ease of access for waste generators and employees.

6.2.1 Layout & Site Requirements

- Consideration of various vehicles, internal and external road design with signs, markings, and barriers;
- Reserve key areas for parking, weighbridge, transport routes, unloading, pre-sorting, bulking, storage, site offices, etc.

- Perimeter fencing and lockable gates should be installed. Signs should be posted around the perimeter, with warnings about potential risks due to falls and contact with waste. Signs should be posted in multiple languages.

6.2.2 Interior Design Considerations

- Adequate interior space for unanticipated material storage, layout changes, and equipment additions;
- Ceiling height to accommodate equipment specification and bulk vehicles.

6.2.3 Waste Reception Hall:

- Waste enters the processing area through a reception hall;
- The hall should store waste for 3-7 days;
- Sufficient space should be available for storing waste during maintenance or downtime;
- Consideration of density, height constraints, and fire regulations.

6.2.4 Sorting Area:

- A sorting area is designated for waste preparation and sorting;
- Recovered materials are stored in a separate area for transportation.

6.2.5 Differentiated Areas:

- Distinguish between ‘dirty’ and ‘clean’ areas for incoming waste and outgoing secondary material;
- Designated storage bays with integrated ramps and tunnels.

6.2.6 Supporting Facilities

- Laboratory for feedstock and product analysis;
- Designated maintenance area for tool and machinery storage;
- Wastewater treatment area for contaminated water;
- Clinic or first aid station, depending on the number of employees;
- Consideration of fueling and washing facilities for trucks, especially for larger plants.

6.2.7 Site Staff and Visitor Facilities

- Toilets, showers, prayer rooms, hand basins with soap and towels or hand-dryer.
- Drinking water supply.
- Change rooms with lockers.
- Canteen or break area.
- Offices.
- Car parking.

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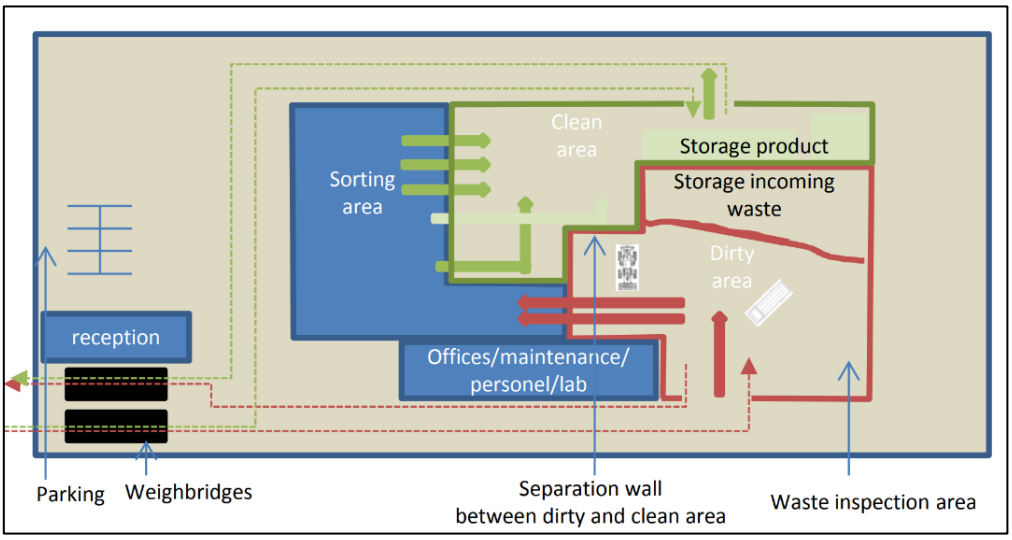

Figure 2 General layout of a sorting plant

6.2.8 Administrative Requirements

- Facility operating schedule: Days of the week, hours each day, and holidays;
- Staffing plan: Lists duties by job title, minimum staffing levels, and typical work schedules;
- Employee training;
- Record keeping procedures (MRR, training certificates, etc.).

6.2.9 Maintenance and Traffic Management Plan

- Incoming and outgoing traffic is monitored at the site entrance;
- Movements of vehicles are registered, and feedstock volume is recorded;
- Ensure logical routing to minimize crossing and prevent accidents;
- Regular maintenance and service programs for vehicles;

- Implementation of a formal Traffic Management Plan to record maintenance activities.

6.2.10 Waste Inspection & Acceptance

- Incoming waste is inspected in a separate area upon arrival;
- Description of acceptable and unacceptable wastes, and procedures for diverting restricted waste before and after unloading;
- Strict compliance with pre-acceptance and acceptance procedures should be adhered to at the site to ensure that explosive, flammable and oxidizing wastes are not received.

6.2.11Waste sorting process and output management

- Description of operating methods for each component of the facility, including waste-screening methods, weighing procedures, tipping floor and storage operations, and on-site clean-up;
- Description of maintenance procedures for each component, including the building, equipment, vehicles, and utilities;
- All source-separated recyclable materials must be reused, recycled, or recovered for energy; Source-separated waste shall not be sent to the landfill or disposed of; Source-separated material may not be crushed, broken, ground up or otherwise altered so that the material cannot be reused or recycled;
- Management of product quality, including standards;
- Consider longer storage of final products based on market conditions;
- Awareness of potential sorting operation stoppages if the storage area becomes full.

7 OCCUPATIONAL HEALTH AND SAFETY

The most significant occupational health and safety impacts typically associated with
workers at waste management facilities occurring during operations include:

7.1.1 Accidents and injuries

- Workers are especially susceptible to accidents involving trucks and other moving equipment. Recommended measures include the implementation of traffic management systems and the presence of traffic controllers;

- Accidents may involve slides from unstable disposal piles, cave-ins of disposal site surfaces, fires, explosions, being caught in processing equipment, and being run over by mobile equipment;
- Other potential injuries include those resulting from heavy lifting, contact with sharps, chemical burns, exposure to infectious agents and potentially contaminated substances (i.e. fuel and foul sewage);
- Especially in MRFs, Employees are in close proximity to a variety of hazards, including equipment with moving parts (e.g. conveyor belts, blades, balers, and compactors);
- Risk assessments of hazards should be conducted with common risks at MRFs, including manual handling; slips, trips, and falls; being hit by moving, flying, or falling objects; contact with moving machinery; and needles/sharps. Each risk assessment should identify the hazards, decide who might be harmed and how, evaluate the risks, decide on precautions and control measures (i.e. suitable training, regular housekeeping, and PPE), and implement the findings. The risk assessment should be reviewed and updated as necessary.

7.1.2 Chemical exposure

- Pre-sorting can be performed manually or automatically. The efficiency and accuracy of sorting are pivotal for the quality of the recovered material. Automatic sorting is often preferred to minimize workplace environmental problems, such as exposure to chemicals or repetitive strain injuries associated with manual sorting.
- Smoke, dust, and bioaerosols can lead to injuries affecting the eyes, ears, and respiratory systems;
- Provide workers with appropriate protective clothing, gloves, respiratory face masks, slip-resistant shoes for waste transport workers and hard-soled safety shoes for all workers to avoid puncture wounds to the feet. For workers near loud equipment, noise protection should be included. For workers near heavy mobile equipment, buckets, cranes, and at the discharge location for collection trucks, include provision of hard hats;
- Provide adequate personnel facilities, including washing areas and areas to change clothes before and after work, as well as praying rooms;
- Ventilate enclosed processing areas (e.g., dust in waste size reduction areas, etc.);
- Monitor breathing zone air quality in work areas at processing, transfer, and disposal facilities. Direct-reading instruments that measure methane

and oxygen deficiency are of primary importance; these include combustible gas indicators, flame ionization detectors, and oxygen meters;
- The site should be a designated 'no eating /drinking & smoking area.

7.1.3 Exposure to pathogens and vectors

- For composting, maintain aerobic conditions and proper temperatures in the windrows. Isolate workers from spore-dispersing components of the composting process, such as mechanical turning (e.g., by using tractors or front-end loaders with enclosed air-conditioned or heated cabs). Aeration systems are preferred over manual turning;
- Provide and require the use of dust masks or respirators under dry and dusty conditions (e.g., when compost is being turned). Charcoal-filled respirators also reduce odor perception;
- Provide prompt medical attention for cuts and bruises. Cover open wounds to prevent contact with the incoming loads or feedstock;
- Fully enclose the waste management site with fencing so that no livestock or wildlife is able to come in contact with the waste, which contains significant potential to enable the spread of livestock and zoonotic disease, as well as spillover disease to wildlife. Provide daily cover of wastes to minimize the attraction to birds, which can become infected with avian influenza and other bird diseases that can then be carried off-site.

To mitigate those risks, it is also necessary to develop a Hazard Management Plan (HMP) in line with the UAE Occupational Health and Safety Management System (OHSMS) (where applicable) to minimize the risk of injury from such hazards. Moreover, contingency plans in the event of equipment failure & Emergency procedures plan need to be considered. Fire safety requirements are also crucial, such as installing a ceiling sprinkler system alarm and fire hoses, which should be in place on-site. This equipment should be clearly marked and tested at appropriate intervals to confirm integrity. Site personnel should be made aware of their location, trained in their correct use, and know when it is safe to use them. Further Environmental impacts and mitigation measures are discussed in Annex 4.

8 REFERENCES

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ANNEX 1: REQUEST FOR PERMIT OF WASTES DISPOSAL

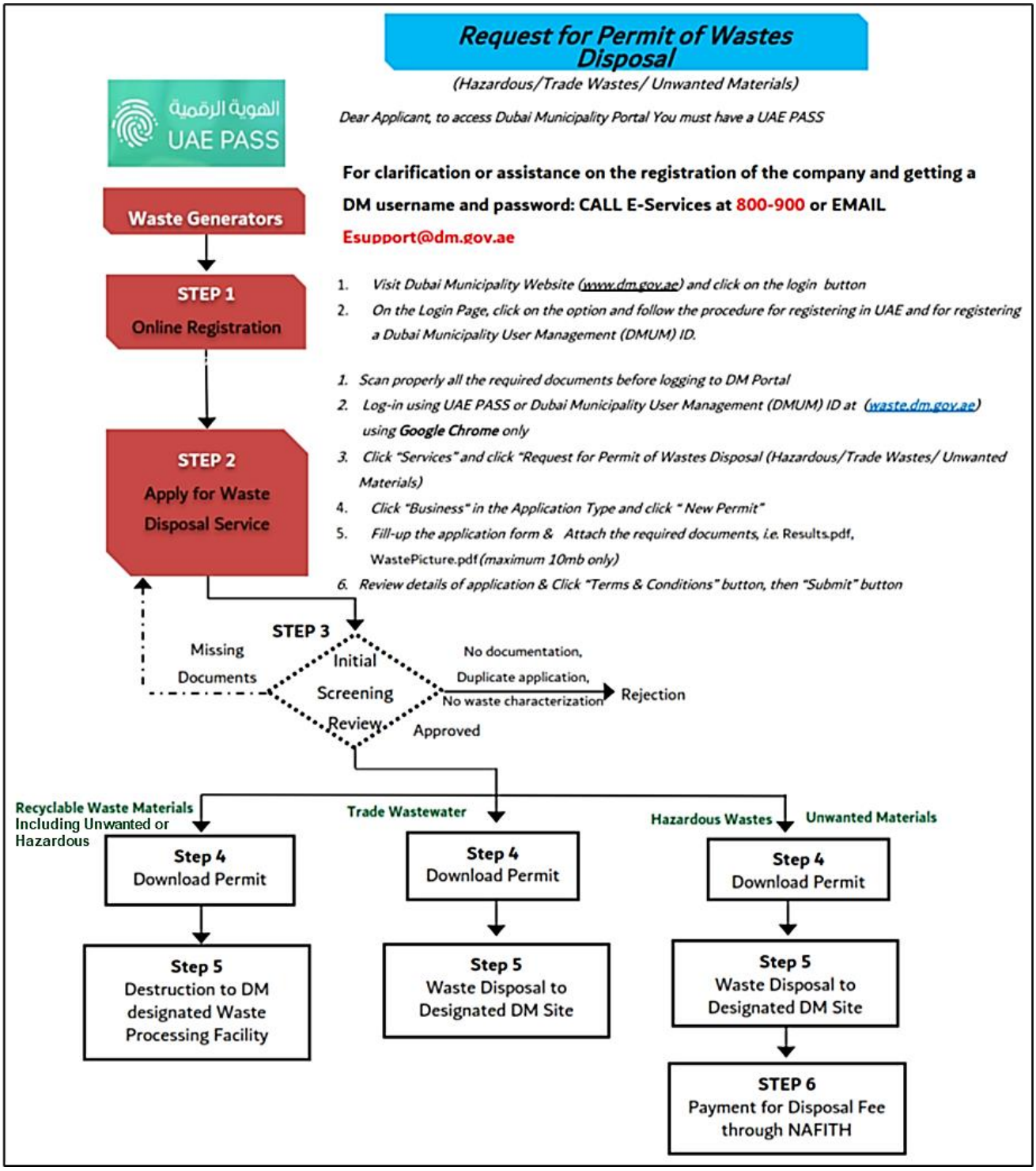

Figure 3: Online registration & request for permit of waste disposal procedures.

ANNEX 2: APPLICATION FORM FOR WASTE PROCESSING/RECYCLING

Table 1 Application Form for Permit/NOC for Waste Processing/Recycling

APPLICATION FORM FOR PERMIT/NOC FOR WASTE PROCESSING/RECYCLING

COMPANY DETAILS

Waste Generator	(Company name)		
License No.		P.O. Box	
Contact Person		Designation	
Contact Info	Telephone & Mobile	Email	

WASTE DETAILS

Waste Description	
Source/Process	
Waste Location (Address of Company)	
Packaging Details/ Number of Packages	
Total Weight (tons)	

**The company and wastes details shall be the same in the online Waste Disposal Service request*

RECYCLER DETAILS

Company Name		License No.	
Address of Recycling Facility			
Contact Info	Telephone & Mobile	Email	
Recycler Reference No.			

ACKNOWLEDGEMENT OF RESPONSIBILITY

We hereby acknowledge that any misdeclaration, and/or breach of conditions hereof or of applicable environment protection regulations will warrant sanctions or fine as deemed appropriate.

For RECYCLING Company:	For Waste Generator (Company Name)
I acknowledge that the declared material applied and on the photos attached for recycling in our facility will not cause any form of pollution either on ground, water or environment during the processing of the wastes. I acknowledge that it is our responsibility to ensure that the material received will be fully destructed and unusable from its original form and will not be distributed in the market. A monthly material recovery report (MRR) will be submitted to Waste Treatment Section (WTS) for processing of waste. (name) (designation) (company stamp & signature & date)	I acknowledge that the wastes stated above was generated by us and is factually described by this application. I hereby certify that the named materials are properly classified, described, packaged, marked and labelled and are in proper condition for transportation. I hereby guarantee that the waste will be delivered to the Dubai Municipality Approved Recycler without loss or alteration. (company stamp & signature & date)

ANNEX 3: SAMPLE UNWANTED MATERIALS DISPOSAL PERMIT

Table 2 Sample Permit for Disposal of Unwanted Materials to DM Accredited Recycler

Waste Operations Department	إدارة عمليات النفايات
Waste Treatment Section	قسم معالجة النفايات

تصريح التخلص من المواد غير المرغوب فيها

Permit for Disposal /Destruction of Unwanted Materials

Ref No WDS-240424-44327 Date 25/04/2024

Application Details				بيانات التصريح
Company Name	:	.....	:	اسم الشركة
License No.	:	503092	:	رقم الرخصة
Mobile No.	:	(+971)	:	رقم الهاتف المحمول
Email	:	..... @gmail.com	:	البريد إلكتروني

Waste Details				تفاصيل النفايات
Waste Description	:	Wheat And Products /wheat flour	:	وصف النفايات
Source/Process	:	Import Shipment	:	المصدر / العملية
Waste Location	:	531 - DIC -SAIH SHUAIB 2	:	موقع النفايات
Package Type	:	Palette	:	نوع الحزمة
Qty per package	:	880	:	
Total Weight (Metric Tons)	:	22	:	الوزن الإجمالي (طن متري)
Applicant Remarks	:	We undertake that only the above declared wastes will be sent for recycling. We and the recycler will be jointly responsible for the safe handling, recycling and final disposal of any waste by-product.	:	ملاحظات مقدم الطلب

Approval Details				تفاصيل الموافقة
Classification	:	For Recycling - Food Material Unfit for Consumption	:	التصنيف
Disposal Location	:	Al Maha Organic Fertilizer Industries & Recycling LLC (Dubai Industrial City):	:	موقع التخلص
Remarks	:	Any misdeclaration of this WDS application will render this permit invalid and shall warrant sanctions or fine as deemed appropriate. Your COMPANY must WITNESS the destruction of materials to ensure that it will not be returned to the MARKET. NOTE: For any Destruction Certificate request please submit recycling certificate by uploading on the WDS system, Click request disposal certificate in the request type, then WDS ref no from the dropdown list, then click get details. This PERMIT is not a substitute to other regulatory permits, and its issuance does not exempt YOUR COMPANY from securing other government approvals, and preclude other agencies/departments from enforcing their rules and	:	ملاحظات

This document is electronically approved without a signature. To verify the authenticity of this document please visit https://waste.dm.gov.ae/Admin/DocumentVerification/VerifyDocument and enter the Document ID : WDS-240424-44327 and Verification Code : 757756 , or alternatively scan the QR Code

هذه الوثيقة معتمدة الكترونيا بدون توقيع، و للتحقق من صحتها يمكن زيارة الرابط أدناه https://waste.dm.gov.ae/Admin/DocumentVerification/VerifyDocument بادخال رقم الطلب WDS-240424-44327 و رمز التأكيد 757756 أو مسح QR Code المجاور

ANNEX 4: ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Table 3 Environmental Factors and Mitigation Measures

Particulate Matter (PM)	Odour
• Paving roads on site. • A bowser is used to spray water onto haul roads and waste storage and processing areas during dry and dusty conditions. • Utilize wheel-washes on incoming and outgoing vehicles. • Align building openings to minimize exposure to prevailing winds. • Install plastic curtains or roller shutter doors over building openings. • Keep station doors closed during operating hours, except when trucks are entering or exiting. • Install misting systems over tipping areas to “knock down” dust particles. • Implement speed limit restrictions on site haul roads. • Cover loads of waste that have the potential to emit significant dust during transport. • Undertake dust monitoring at specified locations on and off-site, if applicable. • Provide all site staff with PPE, including high-visibility clothing, FFP3 masks, and safety glasses.	• Enclose or cover loads of waste. • Refuse to accept certain highly odorous wastes. • Remove any other odorous waste from the premises as soon as practicable. • Increase the distance between the odor source and the receptor. • Practice “first-in, first-out” waste handling practices. • Regularly inspect and monitor waste handling areas. • Frequently clean/wash down waste handling areas. • Install ventilation systems with air filters or scrubbers. • Plant vegetative barriers, such as trees, to absorb and disperse odors. • Install plastic curtains or roller shutter doors on entrances and exits to contain odors when doors are opened to allow vehicles to enter or exit.
Water and Soil Pollution	**Noise and Vibration**
• Locate plants outside local flood zones, if applicable. • Cover the waste - use rain-tight and leak-tight HGVs and containers. • Keep surface water free of run-off contamination from waste, mud, and fuel/oil. • Implement impervious surfaces (i.e. paved surfaces) and engineered drainage systems. Ensure that there are sealed systems in place for potentially contaminated leachate from stored waste, so that it is collected separately from surface water. • Use secondary containment around temporary storage areas, i.e. fuel. • Collect soil samples on-site and within immediate locations to establish baseline conditions. • Monitor the composition of the surface water (e.g. sampling at agreed locations, upstream/downstream of the site, on a monthly/ quarterly basis). • Monitor the flow and composition of foul water/sewer discharge. • Undertake site walkover (including nearby surface water courses) at agreed intervals. • Provide all site staff with PPE, including steel-tipped boots and gloves.	• Select quiet working equipment. • Shut down equipment when not in use. • Set a site speed limit of 15km per hour (or appropriate to site conditions and surroundings). • Enclose all waste-handling operations. • Concrete walls and structures should be used, which absorb sound better than metal structures. • Install shielding or barriers, such as trees, berms, or walls, around the facility to block and absorb noise. • Insulate building walls with sound-absorbing materials. • Locate administrative buildings between sources of noise and the community. • Locate sorting plant building openings (i.e. doors) away from receptors. • Keep doors closed during operating hours, except when vehicles are entering or exiting. • Establish operating hours that avoid early morning or late-night operations. • Set facility noise level limits and adhere to them.

	• Record incidents of noise or vibration that exceed these limits – these should be diarized so that potential causes can be identified, and procedures put in place to eliminate them. • Provide all site staff with PPE, including noise dampening earplugs/muffs.
Litter	**Traffic**
• Covering all incoming and outgoing loads. • Implementing daily litter inspections and pick-ups at the facility and on surrounding streets. • A perimeter fence must be installed to prevent windblown litter from leaving the site.	• Create a robust and formal transport management plan. • Design internal and external roads to include highly visible markings, barriers, and signs (i.e. speed restrictions, traffic flow and separation areas between vehicles and pedestrian movements). • Drivers should be appropriately trained and licensed. • Create acceleration, deceleration, or turning lanes at site entrances and exits (where applicable) to maintain steady traffic flows around the facility. • Work with the community to designate inbound and outbound Heavy Goods Vehicles (HGV) traffic routes and ensure that drivers follow these routes. • Avoid traffic flows adjacent to noise-sensitive property. • Restrict incoming HGV queueing on public streets, i.e., if inadequate space is available on site to accommodate waiting HGVs, use a remote site as a waiting area for HGVs. • Where possible, schedule incoming traffic so that it does not coincide with local rush hours. • Regularly maintain and service vehicles to ensure they are running as efficiently as possible. • Switch off vehicles when not in use (both on-site and visiting vehicles). • Provide all site staff with PPE, including high-visibility clothing and steel-tipped boots.

Flies, Vermin and Birds	Exposure to Potentially Hazardous Equipment and Substances
• Hiring a professional licensed pest control company with expertise and experience in controlling specific vermin populations. • Seal or screen openings that allow rodents and insects to enter the building, such as door and window frames, vents, and masonry cracks. • Implement practices that reduce the likeliness of attracting vermin. • Provide and require use of suitable personal protective clothing and equipment. • Maintain good housekeeping in waste processing and storage areas. • Grade the area properly to prevent ponding (to minimize insect breeding areas); • Use integrated pest-control approaches to control vermin levels, treating infested areas, such as exposed faces and flanks with insecticide, if necessary	• Supplying site staff with all necessary PPE. • Displaying brightly colored warning signs around equipment and machinery. • Regularly maintain and monitor equipment and machinery. • Implemented emergency shut down mechanisms on equipment and machinery. • Keep all areas clean and tidy. • Check bunds and tanks for leaks. • Check the provision of oil spillage kits and absorbent materials. • Ensure tanks and containers are secured against unauthorized access. • Provide continuous staff training. • Make emergency phone numbers visible and accessible. • Provide worker immunization and health monitoring (e.g. for Hepatitis B and tetanus); • Clean and wash with disinfectant the cabins of heavy mobile equipment used at regular intervals;