

Environmental Permit

Environment and Development Planning Act (CAP. 504; Act X of 2010)

Permit number
EP 0007/13/A

The Malta Environment and Planning Authority (hereinafter the Authority; the Competent Authority or MEPA) in exercise of its powers under the Environment and Development Planning Act (CAP. 504) and the Waste Regulations, 2011 (L.N. 184 of 2011 as amended), hereby authorises:

Mr. Francis Vella
o.b.o General Precast Concrete Ltd.
Company registration number: **C12138**

(hereinafter “the Operator” or “the Permit Holder”),
Of / Whose Registered Office (or principal place of business) is at

General Precast Concrete Ltd.
Hal Far Industrial Estate
B’Bugia

to carry out waste management activities related to the crushing of expanded polystyrene and operating a batching plant for the production of concrete products at:

General Precast Concrete Ltd.
Hal Far Industrial Estate
B’Bugia

to the extent authorised by and subject to the conditions of this Permit.

This permit is valid for **four (4) years** from the date below. An application for renewal of this permit is to be submitted at least six weeks prior to expiry of this permit.

Signed

Date

Perit Vincent Cassar f/Director of Environment	25 / 09 / 2013
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Authorised to sign on behalf of the Competent Authority

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Conditions

1 General

The Permitted Installation shall, subject to the conditions of this Permit, be managed, controlled and operated as described in the Application, or as otherwise previously agreed in writing by the Authority.

Status Log

Detail	Date
<i>Application EP</i>	20 March 2013
<i>Permit Issued</i>	25 September 2013

1.1 Permitted Activities

1.1.1 The Operator is authorised to carry out the activities and the associated activities specified in Table 1.1.1.

Activity	Description of specified activity	Limits of specified activity
Operation of a batching plant	Manufacturing of concrete products	From receipt of raw material to final production and dispatch of finished product.
Crushing of expanded Polystyrene	Crushing of expanded polystyrene and packing into bags for resale as a raw material/product	From receipt of waste material to final production and dispatch of finished product

1.2 Site

1.2.1 The activities authorised under condition 1.1.1 shall not extend beyond the Site, as shown on the Site Map in Schedule 2 to this Permit.

1.3 General Conditions

1.3.1 The conditions and obligations of this permit are without prejudice to any other regulation, code of practice, conditions or requirements requested by other Authorities or entities, including but not limited to, the Occupational Health and Safety Authority, Transport Malta and the Malta Resources Authority.

1.3.2 The conditions and obligations of this permit are without prejudice to any valid and approved, pending or any other development permits that are going to be submitted or issued on this site, any planning regulations, planning limitations or any provisions listed in the Environment and Development Planning Act (CAP. 504; Act X of 2010).

1.3.3 This permit is being granted saving third party rights.

- 1.3.4 In these conditions and their interpretation, all terms shall have the same meaning as that assigned to them in the Waste Regulations, 2011, as published by Legal Notice 184 of 2011 as amended, or any statutory provisions or regulations amending or replacing them.
- 1.3.5 The waste management activities on site shall be managed without endangering human health or harming the environment, in particular:
- a. Without risk to water, air, soil, plants and animals;
 - b. Without causing a nuisance through noise, dust or odours;
 - c. Without adversely affecting the countryside or places of special interest/value.
- 1.3.6 The Permit Holder shall apply the precautionary principle to safeguard the environment whilst carrying out the permitted activities and should immediately refuse the entry of waste that is suspected to be in breach of the conditions of this permit.
- 1.3.7 The Permit Holder shall ensure that all waste management operations authorised in accordance with this Permit are carried out in an orderly manner and in such a way as to cause the least possible disturbance to the surroundings and the least possible nuisance to third parties.
- 1.3.8 The Permit Holder is to be fully liable and responsible for managing the site in all its various aspects and to supervise the full adherence with all the conditions of this permit.
- 1.3.9 Any significant incident (including accidental release of liquid, solid or gaseous materials from the site that could reasonably be regarded as causing environmental damage, or as posing a threat of environmental damage), shall be reported immediately to the Civil Protection Department and within 24 hours to MEPA.
- 1.3.10 The site must be well secured to minimise the opportunity for unauthorised entry.
- 1.3.11 The company shall maintain a register of third party complaints. The register shall record the name and address of the complainant(s), the date, location, source and nature of the complaint and the corrective action undertaken, where such action proves necessary.
- 1.3.12 In the event of cessation of business activity on the site, all wastes (including machinery, tanks, equipment) and hazardous materials must be removed from the site such that any pollution risk is avoided and the site is returned to a satisfactory state. The Operator shall notify the Authority immediately upon a decision being taken to cease business activity, and shall submit a decommissioning plan to the Authority for approval.
- 1.3.13 All plant, equipment and technical means used in operating the Permitted Installation shall be maintained in good operating condition and without causing significant polluting emissions, potentially polluting leaks and spillages or excessive noise. The operator shall keep maintenance records.
- 1.3.14 The Permitted Installation shall be managed, controlled, supervised and operated by staff who are aware of the importance of environmental protection and suitably trained on the requirements of this Permit, in particular on those permit conditions relevant to their duties. All staff shall be provided with adequate training and written operating instructions to enable them to effectively carry out their duties. Such training shall be recorded.
- 1.3.15 This Permit is not transferable unless by application to the Authority, whereby the permit will be transferable only after an official letter from the Authority endorses the permit transfer. Transfer of ownership will also necessitate the transfer of environmental obligations and liabilities.

- 1.3.16 The Authority shall carry out regular compliance checks and audits that vary in frequency according to the site's compliance with the permit conditions. Any such checks and audits carried out by the Authority are to be made at the Permit Holder's financial expense.
- 1.3.17 The Authority's representatives are empowered to inspect every part of the site and ask for any closed or locked areas to be opened. They are also entitled to be given any proof, documentation, plans, receipts or any other records which these Authority representatives may request.
- 1.3.18 The Authority reserves the right to alter, amend or remove any of the conditions of this permit after notifying the Permit Holder of its intention and after describing the changes to the Permit Holder.
- 1.3.19 The Permit Holder is able to request the Authority to change or amend any of the conditions of this permit with which the Permit Holder is no longer in a position to achieve compliance by applying for a Variation Notice. The changes in the permit conditions are only affected once official documentation from the Authority notifies the Permit Holder that the Variation Notice is in affect. Until such a time, the permit holder retains the responsibility to achieve full compliance with these conditions.
- 1.3.20 The validity of this permit is until 25th September 2017. The Permit Holder is able to renew the permit upon application with the Authority expressing his/her intention at least six (6) weeks prior to the expiry of the permit. The permit will be considered renewed once the official Variation Notice is issued by the Authority.
- 1.3.21 A copy of this permit should be available at all times on site at the permitted facility, including any Variation Notices or amendments to it.
- 1.3.22 The Authority may revoke this environmental permit or part of this environmental permit where significant mismanagement of the site is observed or any of the permit conditions are not respected after a written warning is given by the Authority or in any eventuality that gives the Authority enough reason to revoke this permit.
- 1.3.23 The Permit Holder is able to surrender this environmental permit **only after** applying with the Authority. The Permit Holder shall retain all responsibility for management and activities within the site until the Authority officially approves the permit surrender in writing.

1.4 Operational Changes

- 1.4.1 The operator shall seek the Authority's written agreement to any operational changes which could cause impact on the environment (including introduction of new waste streams, processes or equipment) by sending to the Authority: written details of the proposed change, including an assessment of its possible effects (including changes in emission and waste production) on risks to the environment from the Permitted Facility; any relevant supporting documentation or drawings, and the proposed implementation date.
- 1.4.2 Any such change shall not be implemented until agreed in writing by the Authority. As from the agreed implementation date, the operator shall operate the Permitted Installation according to that change, and relevant positions in the Application shall be deemed to be amended.

1.5 Improvement Programme

- 1.5.1 The Operator shall complete the improvements specified in Table 1.5.1 by the date specified in that table, and shall send written notification of the date of completion of

each requirement to the Authority within 10 working days of the completion of each such requirement.

Table 1.5.1: Improvement programme		
Reference	Requirement	Deadline
1	Preparation of an emergency response plan as specified in permit condition 4.3.1. The plan is to be prepared by a specialist competent person and submitted to the Authority and the Civil Protection Department.	Within 6 months of issue of the permit.
2	A quarantine area is to be designated within the site boundary to temporarily hold non-inert waste that may enter the site.	To be constructed within 1 month from the date of issue of the permit.

2. Site Infrastructure and Equipment

2.1 General Site Infrastructure

2.1.1 During non-operating hours the site should be firmly closed and totally inaccessible to third parties, both by vehicle and on foot.

2.1.2 A quarantine area is to be designated within the site boundary to temporarily hold unpermitted waste that may enter the site (refer to Section 3). A non leaking skip or similar contained structure can be utilised for the temporary storage of unpermitted waste.

2.1.3 The site should be clearly identified by a site identification board, which should be replaced as soon as it is damaged or the information is no longer readable from a distance. The site identification board should be located at the site entrance and should contain the following information:

- a. The company name and address
- b. List of authorised activities on site
- c. 24 hour emergency mobile number
- d. Permit Number (making it clear this site is permitted by the Authority)
- e. Opening hours of the site

2.1.4 No waste shall be deposited, stored, treated or otherwise handled in any area of the site that is not impermeable. No liquid waste is to be kept on site.

2.1.5 The entrance/exit area to be Permitted Site should be constructed on impervious grounds and should be regularly cleaned so as to prevent vehicles from transporting dust and waste onto public roads.

2.1.6 A vehicle wheel wash/ wheel dip (or similar mitigation measures) should be installed before the main exit of the Permitted Site so as to prevent vehicles from transporting dust and waste onto public roads.

2.2.1 The operations authorised by this Permit shall only be carried out within the times specified below:

Monday to Friday:	07:00 – 17:00
Saturday:	07:00 – 17:00
Sunday and Public Holidays	Closed

2.3 Equipment on Site

- 2.3.1 The weighbridge/s shall be maintained and calibrated and certified by a warranted engineer or by the equipment's manufacturing company once every year.
- 2.3.2 All plant equipment and technical means used in operating the Permitted Installation shall be maintained in a good operating condition and maintenance records of the above shall be kept by the operator.
- 2.3.3 All concrete batching plant equipment is to be installed and operated in accordance with the manufacturer recommendations, so as to minimise the release of dust to air, land and water.

2.4 Storage Areas

- 2.4.1 All storage of materials or waste shall take place only in areas with impervious ground and where thorough clean up and site reinstatement can be readily undertaken.
- 2.4.2 All bulk oil and fuel storage tanks shall be provided with an adequately designed bund system with an impermeable base and walls, as per relevant MRA standards. The capacity of the bund shall be a minimum of 110% of the largest tank within the bund of 25% of the total volume of all the tanks within the bund. Filling and off-take points shall be located within the bund, which shall not have any drainage connections for rainwater. The permit holder shall also ensure and take all precautions in his competence to avoid any leakages or spills from liquid or solid material that can cause environmental harm.
- 2.4.3 Containers for bulk storage of chemicals shall be properly designed, located, labelled, banded and maintained so as to prevent accidental spillage. Incompatible chemicals shall not be stored in the same bund. Storage areas shall have impervious ground and shall be banded or otherwise designed so that surface and ground waters cannot be contaminated by spillages.
- 2.4.4 Bulk storage tanks for fuels, oils and chemicals, and associated bunding and pipe work shall be visually inspected at least twice a month. Such records should be included in the site diary.
- 2.4.5 The storage of flammable, toxic and hazardous substances and the maintenance of critical safety equipment should correspond to good international practice.

3. Operational Procedures

3.1 Emissions

3.1.1 Emissions to Air

- 3.1.1.1 Production of concrete products through a batching plant shall be carried out without significant dust emissions. Dust emissions monitoring shall be carried out as per Schedule 3.
- 3.1.1.2 All processes which generate significant levels of airborne contaminants (such as dusts) shall have effective local collection and shall discharge (after treatment where necessary) through a stack or vent located and/or designed in such a way as to avoid local nuisance and in conformity with provisions of the Environment and Development Planning Act, 2010.
- 3.1.1.3 Emissions to air shall arise from the emission points specified in Table 3.2.1.1.

Table 3.2.1.1

Emission point reference	Source
PS1	Concrete Plant
PS2	Cement Silos
PS3	Generator

3.1.1.4 The limit for emissions to air for the parameters and emission points listed in Table 3.2.1.2 shall not be exceeded. These limits refer to dry gas at 3% volume O₂ content.

Table 3.2.1.2

Emission point reference	Parameter	Limit
PS1, PS2	Total Deposited Dust	200mg/m ² /day

3.1.1.5 Diesel (gas oil) used for the generator shall have a Sulphur content not greater than 0.1%

3.1.1.6 The operator shall ensure that the generator referred to in Table 3.2.1.2 is certified by an independent warranted engineer. The certification shall be carried out during operation and shall be submitted as part of the Annual Environment Report (Schedule 3).

3.1.1.7 In the event of local nuisance from emissions to air, the Operator must, at the written request by MEPA and within ten (10) working days, identify the cause of the nuisance and examine measures for its elimination or minimisation including:

- a. Relocating / redesigning the stack(s) or vent(s) where nuisance is minimised,
- b. Replacement of fuel,
- c. Preventive measures such as replacement of process materials by more environmentally sensitive compounds,
- d. Improved storage of materials,
- e. Use of additional abatement measures,
- f. Any other measure that may be deemed necessary to undertake.

3.1.1.8 All abatement equipment shall be cleaned and maintained on a regular basis, or as per the manufacturer specifications.

3.1.1.9 The Operator shall prevent or where that is not practical, reduce fugitive emissions of substances to air from the Permitted Installation.

3.1.2 Effluent Discharges

3.1.2.1 No discharges to surface water or groundwater shall take place from the Permitted Installation.

3.1.2.2 No discharges to the foul sewer (other than from domestic sewage or equivalent) shall take place from the Permitted Installation.

3.1.2.3 The Operator shall undertake all necessary measures and precautions to prevent spillage of raw materials, intermediates, products, waste and any other materials.

3.1.2.4 The Operator is to obey all the conditions stipulated in the Sewer Discharge Permit issued by the Water Services Corporation. The Permit Holder is to ensure that the Sewer Discharge Permit remains valid.

3.1.3 Emissions to Land

3.1.3.1 No emission from the Permitted Installation shall be made to land.

3.1.4 Odour

3.1.4.1 The Operator shall prevent or where that is not practicable reduce odorous emissions from the Permitted Installation so as not to cause nuisance to Third Parties.

3.1.5 Noise and Vibration

3.1.5.1 The Operator shall prevent or where that is not practicable reduce emissions of noise and vibration from the Permitted Installation.

3.1.5.2 The Authority shall reserve the right to request a noise monitoring analysis, at the expense of the Permit Holder. In this regard, the locations, measurements and assessment must be made according to BS 4142:1997, all the series of ISO 1996, ISO 9613 and any other standard methodology stipulated by the Authority. This shall be subject to the submission of a method statement and subsequent approval by the authority prior to the commencement of any monitoring.

3.1.6 Waste

3.1.6.1 Only waste streams as set out in the European Waste Catalogue codes in Schedule 1 can be accepted and processed on site.

3.1.6.2 All wastes shall be stored within a designated and controlled storage area(s) prior to ultimate disposal. Any unpermitted wastes that may inadvertently enter the site must be stored in a clearly defined quarantine area (Condition 2.1.2) and not be mixed with other wastes on site.

3.1.6.3 No incineration of waste or any other material is permitted on site

3.1.6.4 No storage, treatment or recovery of hazardous waste is allowed on site.

3.1.6.5 Any hazardous wastes which may inadvertently enter the sites shall be stored in a labelled, closed container(s) within a designated and controlled storage area(s) prior to ultimate disposal. Wastes of different natures shall not be mixed in the same container.

3.1.6.6 No liquid wastes shall be accepted on site.

3.1.6.7 No storage of waste is permitted for a period exceeding 12 months.

3.1.6.8 The operator is to prevent litter or other wastes escaping from the site boundaries. Any such escape of waste shall be collected immediately upon detection.

3.1.6.9 The Permit Holder shall maintain records of the weight of each waste consignment received and /or removed from the site, and such data is to be collected using a properly calibrated weighbridge. Operator is to submit details of the scale used, together with its location and calibration details. Records of waste weighed prior to loading onto the vehicle from the point of collection may be accepted in lieu of on site weighing.

3.1.6.10 End-of-waste criteria must be met for any waste to be classified as a product. In such cases, the operator shall comply with relevant criteria set by legislation. In the

absence of any relevant legislation, the operator shall follow the procedure laid down in Regulation 6 of Legal Notice 184 of 2011 as amended.

- 3.1.6.11 Only registered waste carriers as per activity 38 of schedule 1 in the Waste Management (Activity Registration) Regulations, 2007 as published by Legal Notice 106 of 2007 are allowed to transport waste to and from this site.
- 3.1.6.12 The total quantities of waste accepted at the site per year shall not exceed the capacity of the permitted area as marked on site layout plan during the environmental permit application process.
- 3.1.6.13 The Permit Holder shall ensure to issue a receipt for every consignment of wastes accepted on Site indicating the date and time of the consignment and the weight of the waste received. Each receipt should indicate the site name and permit number, as well as bearing a unique sequential number. Records of all waste consignments leaving the site shall also be officially recorded.
- 3.1.6.14 Crushing of expanded polystyrene should be contained in a way that the shredded material is not exposed to the elements or prone to being windblown around the site.
- 3.1.6.15 All wastes arising from activities taking place on site must only be sent to facilities licensed to accept the individual waste stream, either locally or abroad.
- 3.1.6.16 Transboundary movement of waste shall be carried out in accordance with the following regulations, as amended from time to time:
 - a) Regulation (EC) N° 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste
 - b) Commission Regulation (EC) N° 1379/2007 of 26 November 2007 amending Annexes IA, IB VII and VIII of Regulation (EC) N° 1013/2006 of the European Parliament and of the Council of Shipments of waste, for the purposes of taking account of technical progress and changes agreed under the Basel Convention; and
 - c) (Commission Regulation (EC) N° 1418/2007 of 29 November 2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) N° 1013/2006 of the European Parliament and of the Council to certain countries to which the OECD Decision on the control of transboundary movements of waste does not apply.
- 3.1.6.17 Disposal certificates shall be kept on record and made available for inspection for a period of at least 4 years from date of their issue.
- 3.1.6.18 All hazardous waste transferred off the site from the quarantine area shall be accompanied by a valid hazardous waste Consignment Permit issued by MEPA. Each consignment under the consignment permit should be accompanied by a Consignment Note.

4. Site Management

4.1 Staff Obligations and Responsibilities

- 4.1.1 Without prejudice to any code of practice or any other regulations or agreements between or from other Authorities or governmental bodies, this site should only open for business from Monday to Saturday excluding Sundays and public holidays. (as per condition 2.2.6).

- 4.1.2 All employees on site should be fully conversant with the obligations of this permit and should be individually aware of their responsibilities and liabilities in observing the conditions of this permit.
- 4.1.3 One member of the staff should be nominated as the Technically Competent Person (TCP) of the site, whereby this person is to physically represent the Permit Holder during the times when the Permit Holder will not be available.
- 4.1.4 The TCP is responsible for the implementation of all the obligations stipulated in this permit, must supervise the rest of the staff on site and is completely responsible to ascertain that all permit conditions are being adhered to and that unauthorised waste does not enter the site.
- 4.1.5 The TCP is to be present at all times on site and in her/his absence another member of staff is to substitute him/her temporarily. In the event that a TCP terminates her/his employment, another person shall be appointed as a TCP immediately and the Authority shall be informed of this change.
- 4.1.6 In the event where operations cease temporarily, the TCP or Permit Holder are obliged to notify the Authority within two (2) days and are also to inform the Authority with regards to when the works are intended to resume.
- 4.1.7 All the staff on site should be fully aware of the procedures to be taken to contain any environmental hazard which may arise related to the activities being carried out on site.

4.2 Control of Mud, Debris & Emissions

- 4.2.1 At all times during the year the Permit Holder and/or TCP are to ascertain that the roads leading to the facility are clean and free of mud or large debris. In the event that mud or large debris is observed on the road the Permit Holder and/or TCP is to take remedial action and ascertain that the roads are immediately cleaned.

4.3 Accident Prevention and Control

- 4.3.1 An Emergency Response Plan shall be maintained containing details of the location, nature and quantity of chemicals, oils and fuels stored, any special hazards, a drawing showing location of drains and the emergency phone numbers of the operator and relevant authorities. It shall also include actions to be taken in the case of incidents which could affect the environment, such as fires and chemical/fuel spills. The emergency plan shall indicate that accidental releases of chemicals and fires caused by chemicals are to be managed as specified in the respective MSDS sheets.
- 4.3.2 The emergency response plan shall be updated whenever necessary and the updated version sent to MEPA and the Civil Protection Department.
- 4.3.3 In the case of an accident (including fire, chemical spills, etc.), the Operator shall follow the Emergency Response Plan referred to in Condition 4.3.1 and, in the case that such accident could reasonable be regarded as causing environmental damage or as posing a threat of environmental damage, the Operator shall notify the Authority within 24 hours.

4.4 Site Records & Archive

- 4.4.1 A site diary should be kept on site in which the following information shall be recorded on a daily basis:
 - (a) Total amount of waste in kilos accepted or removed on site

- (b) Total amount in kilos of unaccepted material sent to the quarantine area and by which registered waste carrier it was transported
- (c) Any incidents that took place on site such as mechanical faults in the machinery or equipment used on site, any spills, fires, etc and the remedial action taken
- (d) Names of visitors
- (e) Any other incidents that the Permit Holder deems important to record in the Site Diary.

Each event recorded within the site diary must be completed within 24 hours of the event.

- 4.4.2 The Operator shall ensure that all records required to be made by this Permit and any other records made by it in relation to the operation of the Permitted Installation shall:
- (a) be made available for inspection by the Authority at any reasonable time;
 - (b) be supplied to the Authority on demand and without charge and in the format requested;
 - (c) be legible;
 - (d) be made as soon as reasonably practicable;
 - (e) indicate any amendments which have been made and shall include the original record wherever possible; and
 - (f) be retained at the Permitted Installation, or other location agreed by the Authority in writing, for a minimum period of 3 years from the date when the records were made, unless otherwise agreed in writing.

4.5 Reporting

- 4.5.1 The Operator shall submit to the Authority an Annual Environmental Report (AER) of the previous year by not later than end of March of each year, providing the information listed in Schedule 3 of this Permit and in the format specified therein.
- 4.5.2 A summary record of the waste quantities accepted and removed from the Site shall be made annually and shall be submitted to the Authority as part of the AER. The summary record shall be in the format specified in Schedule 3 of this permit and shall be submitted within one month from the end of the reporting year.

Schedule 1

Complete List of Permitted Waste on Site

European Waste Codes	Description of Waste
19 12 04	Plastic (Expanded polystyrene)

Schedule 3

Annual Environment Report and Submissions

Important note

By this submission, you confirm that you give your explicit consent for the entire contents of this Annual Environment Report to be made available on the Authority's public website.

S3.1 Introduction

Environmental Permit Number	
Reporting Year (Calendar Year: 1 January to 31 December)	
Name and locality of Site	
Brief description of activities at the site	

S3.2 Waste Records (waste accepted & removed from site)

Waste Type		Quantity (e.g. tonnes, litres etc)		
Hazardous waste	EWC code ¹	Consignment note number	Destination	Quantity (tonnes, litres etc)
Off-site transfers of hazardous waste (eg: Waste Oils)				

S3.3 Dust Emissions & Monitoring

Dust Emissions for the whole site are to be monitored on a **quarterly basis (every 3 months)** during the time when the site is operational. The Permit Holder is to submit a monitoring proposal within **three (3) months of the date of the Authority's written request** as per the Terms of Reference on the Total Deposited Dust monitoring in Schedule 4.

The Permit Holder is to appoint an independent consultant to submit monitoring specifying the methodology to be used. The Authority reserves the right of further monitoring to determine the extent of environmental impact(s) and the need for any mitigation measures.

¹ <http://www.mepa.org.mt/waste-policies>

S3.4 Fuel Consumption Data

Equipment ¹	Fuel type	Sulphur Content of Fuel ²	Fuel Consumption	Units
				tonnes

S3.5 Submission of Certifications

Condition Number	Documentation
2.4.1	Certification of weighbridge
3.1.1.6	Certification of generator

¹ E.g. Boiler, generator, vehicles etc.

² Specify units (e.g. as percentage, or mg/kg)

Schedule 4

Dust Emissions - Terms of Reference for Monitoring of Deposited Dust

1. Introduction

Malta has a number of quarry operators that are engaged in the extraction of resource and backfilling operations. The Malta Environment and Planning Authority (MEPA), is currently overseeing the implementation of regulations and legal obligations, related to quarry operations, through an environmental permitting system. In this regard, the Authority is requesting quarry operators to monitor a number of parameters, including dust emissions resulting from operations carried out within their installations.

Dust emissions from quarries and related activities vary from extraction and excavation operations to stockpiling, storage and handling of raw/waste materials. Particulate emissions may also result from normal day-to-day operations, such as exhaust emissions from vehicles and related machinery, bulk material handling, material processing activities (including crushing, grading, sieving and recycling), tipping, unsurfaced internal haul roads and compaction of inert waste material. It is the sole responsibility of the quarry operator to adopt suitable dust abatement measures so as to try and limit, as much as possible, the dispersion of dust resulting from such quarry operations.

The following Terms of Reference (TORs) are being published so as to provide quarry operators with details as to how and what is required in order to monitor dust emissions at various stages of quarry operations and restoration. These TORs also establish the following responsibilities:

- (i) The permit holder is obliged to contract suitably qualified and recognized monitoring service providers for the assessment of deposited dust emissions from quarries;
- (ii) The monitoring service provider is obliged to adhere to all responsibilities stipulated in the TORs and submit all the documentation as requested by the Authority.

The process has been sub-divided into 3 steps/phases; (i) method statement (ii) monitoring of total deposited dust and (iii) total deposited dust monitoring report.

2. Phases

These TORs provide guidance on the documentation, choice of dust monitoring/sampling technique and other complementary data that needs to be submitted to the Authority as part of the dust emission report for quarries. Below is a brief overview of each and every phase, including details regarding the compilation of the method statements and associated monitoring reports.

2.1 Phase 1 – Method Statement

Prior to the implementation and commencement of the dust monitoring exercise, the quarry operator, through the monitoring service provider, is to propose a method statement, subject to approval by the Authority. The Method Statement shall be reviewed as required by the Authority, and shall include the following:

- (i) Details of applicant and monitoring service provider
- (ii) Details of Site
- (iii) Assessment of dust emission sources
- (iv) Monitoring/sampling technique
- (v) Time and duration of monitoring/sampling
- (vi) Details of equipment
- (vii) Monitoring/sampling points
- (viii) Method of analysis of the dust emissions monitoring data and assumptions made
- (ix) Supplementary information

A detailed overview of the information that needs to be compiled and submitted to the Authority is given below:

- (i) Details of applicant and monitoring service provider – This section is to include details of the Environmental Permit Holder together with details of the monitoring service provider. A detailed company profile highlighting the expertise and experience of the company and personnel involved in the monitoring services (including laboratory accreditation/ certification) should be highlighted in this section. The choice of the service provider is subject to approval by the Authority.
- (ii) Details of the site (quarry) – This section should include details on the exact location of the quarry in question. All data should be geo-referenced on latest orthophoto maps and base maps as issued by the Authority and should:
 - i. Include an A4 or A3 Survey Sheet plan (scale 1:10,000 and/or 1:2,500 as appropriate) showing all existing development (land uses and main activities) within 250 meters of the boundary site including all roads and buildings. The boundaries of the quarry should be outlined in red;
 - ii. Include an A3 Block Plan (scale 1:500) which shall indicate, in a colour-coded scheme, all areas (within and at the periphery of the quarry) that are potential sources of emissions, including (but not limited to) areas of extraction and excavation, crushing and sieving, stockpiling, backfilling, stacks, internal roads and areas of heavy traffic;
 - iii. Include a survey sheet plan, of appropriate scale and size, which shall indicate the main sensitive receptors, which include buildings, historical monuments, residences, sites of geological, archeological and ecological importance, and any other structures and sensitive land uses which could be affected by dust dispersion;
 - iv. Include a survey sheet plan, of appropriate scale and size, which shall indicate buffer zones or areas of influence that are likely to be affected by dust dispersion; and
 - v. Include a survey sheet plan, of appropriate scale and size, which shall indicate the proposed monitoring/sampling points.
- (iii) Assessment of dust emission sources – This section should identify all potential point and fugitive sources of dust both from operations conducted within the quarry and from activities in peripheral and neighbouring sites. All areas of extraction and excavation, crushing and sieving, stockpiling, backfilling, bulk material handling and other sources of dust pollution hotspots must be highlighted. In addition, stacks, areas of heavy traffic and any other potential dust emitters located in the vicinity of the quarry must also be taken into consideration.

- (iv) Monitoring/sampling technique – This section is to provide details of the sampling methodology to be adopted in order to ensure accurate and reliable data. In addition, the choice of the sampling technique must guarantee that resultant data is reproducible and comparable with set standards. The sampling technique to be implemented **must measure deposited dust only**. Sampling techniques and methods for the measurement of the total deposited dust shall be done by means of deposit gauges or omni-directional Frisbee-type depository gauge/s sampling technique.
- (v) Time and duration of monitoring/sampling – The preferred option for sampling shall be that of continuous monitoring so as to achieve data that is representative of general (seasonal) conditions and which eliminates the probability of registering irregular peaks or patterns. Therefore, measurements shall be made in a 2 (two) week continuous sampling period, every 3 (three) months.
- (vi) Details of equipment – This section should contain details regarding the type of equipment/instrument to be used in order to measure the total deposited dust. The instrumentation varies depending on the type of dust particles to be monitored and sampling technique to be deployed. Dust monitoring instruments normally comprise a receptor, an interconnector (normally in the form of a hollow metal stand) and a collection sampler/bottle. Details regarding the sensitivity, collection capacity of the equipment and reliability of data output should also be included in this section. Sampling equipment is to be in line with requirements and standards listed in section 2.1 (iv). All instrumentation and equipment to be used for the monitoring of dust emissions from quarries must be tamper-proof.
- (vii) Monitoring/sampling points – This section should include details regarding the choice of locations and number of sampling points. The sampling points shall be located in areas/positions that are representative of all the dust that is generated from the quarry. In particular circumstances, and when deemed necessary by the Authority, further (or different) sampling points may be required. Adjacent quarries will be allowed to implement **joint monitoring programs, provided there is official agreement between individual operators and subject to approval by the Authority**.

Monitor service providers shall also locate one or more stations in an area which will enable retrieval of background particulate matter data for comparative purposes (and should ideally be located away from the influence of major pollutant sources). When choosing sampling locations; sampling height, structural or natural (e.g. trees and bushes) obstructions, interfering influences (such as stacks, vents, etc.) and topographical aspects should all be given due consideration.

The sampling direction and number of monitoring points are two other very important factors. The sampling technique must, in most cases, incorporate an omni-directional methodology. The presentation of the resultant data must also take into consideration the choice of the sampling technique. In addition, the sampling network (and subsequent number of sampling points) must aim at monitoring both fugitive and point source emissions from the quarry.

- (viii) Method of analysis of the dust emissions monitoring data and assumptions made – This section should include details regarding the method of analysis of the sampled material. Analysis shall be conducted in line with the respective sampling techniques and standards. Data analysis and resultant concentrations

shall be expressed in mg/m²/day. Information regarding any assumptions made throughout the analysis and presentation of data shall also be included in this section.

- (ix) Supplementary information - This section should include details regarding, meteorological factors, and process operations and details regarding traffic flow patterns outside the quarry.

Meteorological conditions can greatly impact the transport of and the mechanisms and rates of removal of particulate matter from the atmosphere. Meteorological data to be collected as part of the monitoring program should include wind speed and direction (often measured at one or more of the monitoring sites to indicate from which direction the sampled air emanates), rainfall, cloud cover, humidity and surface wetness.

Data concerning daily patterns of traffic flow on roads adjacent to the monitoring quarry site must also be submitted, upon request by the Authority. In addition, process data, especially if activities carried out at the facility follow a certain routine (such as specific activities carried over a specific period of hours or days or facility shut down over night or during certain times of the year), must also be given due consideration.

A hard copy and a soft copy of the method statement and supporting documentation must be submitted to MEPA on the following address/email:

Address: Monitoring of Dust Emissions from Quarries
Environmental Permitting and Industry Unit
Malta Environment and Planning Authority
Environment Protection Directorate
P.O Box 200
Marsa
GPO 01

Tel: 2290 – 0000

Fax: 2295 – 2295

E-mail: environmental.permittingquarries@mepa.org.mt

MEPA will subsequently review the data submitted and where necessary request further information.

2.2 Phase 2 – Monitoring of Total Deposited Dust

Following the submission of the method statement and subsequent approval from the Authority, the operator shall be authorised to implement the deposited dust monitoring operations subject to all conditions and regulations stipulated in this document.

2.3 Phase 3 – Total Deposited Dust Monitoring Report

The monitoring report shall be compiled upon completion of the dust monitoring exercise. This document shall consist of:

- (a) A detailed report of the sampling method/technique and equipment deployed;

- (b) A detailed report of the parameters measured and values achieved. Measurements of each parameter must take into account the type of particle to be monitored (deposited dust), the concentration (in $\text{mg}/\text{m}^2/\text{day}$) and the time & duration of the sampling session.
- (c) A report identifying the number and location of the monitoring stations in relation to quarry operations. This information should correspond with the data submitted in the method statement;
- (d) Details regarding the date, time and duration for each monitoring session. This should also include the period over which the data is/was collected;
- (e) A meteorological report giving details of wind speed and direction (measured at one or more of the monitoring sites to indicate from which direction the sampled air emanates), rainfall, cloud cover, humidity and surface wetness;
- (f) A summary of the results and a statement of uncertainty on the data achieved. Results may also be presented in a graphical format, as a time plot, histogram, which will make it easier to identify outliers, periods with missing data, high pollution episodes or seasonal patterns. Alternatively, in case of large volumes of data, statistical summaries may also be considered;
- (g) An interpretation of the data explaining certain peaks or patterns in the data provided. Additionally, the report must identify measures to limit excessive dust emission sources.

Quarry operators having monitoring reports with a value exceeding $200\text{mg}/\text{m}^2/\text{day}$ will be requested by the Authority to implement an improvement programme aimed at lowering the total deposited dust value. The Operator shall submit an improvement programme for the Authority's approval, which should include a number of mitigation measures (additional to those imposed through the environmental permit) in order to limit the generation and dispersion of dust.

The total deposited dust monitoring report shall be submitted to the Authority, on the same address provided in section 2.1, within 5 (five) days of completion of the sampling exercise. In the event of complaints from individual residents and/or entities, the service provider is obliged to provide a copy of the total deposited dust monitoring results, and explain the contents of such, to the complainants, within a time period to be determined by the Authority.

END OF PERMIT