4-7-3- National BAT Assessment-Waste Sector

1. Review of Applicable National BAT

This report provides an assessment of conformity of proposed facility with National Best Available Techniques (BAT) for the activity of recovery of inert soil waste in the restoration of Ballinarooaun quarry.

BAT is defined in Section 5 of the Environmental Protection Agency Acts, 1992 to 2007, and Section 5(2) of the Waste Management Acts 1996 to 2010, as the "most effective and advanced stage in the development of an activity and its methods of operation, which indicate the practical suitability of particular techniques for providing, in principle, the basis for emission limit values designed to prevent or eliminate or, where that is not practicable, generally to reduce an emission and its impact on the environment as a whole".

It is considered that the EPA, 2011 *Final Draft BAT Guidance Notes for the Waste Sector: Waste Transfer and Material Recovery* (referred to as BAT from here forth) is the only current published National BAT which is applicable to the proposed activity of recovery of inert soil waste at the facility. The BAT details process description, risk to the environment and control techniques, best available techniques, BAT associated emission levels and compliance monitoring for waste transfer and materials recovery facilities.

The BAT states that the licensee must demonstrate to the satisfaction of the Agency, during the licensing process, that the installation/facility will be operated in such a way that all the appropriate preventative measures are taken against pollution through the application of BAT and justify the application of other than the most stringent ELV in the range. The below assessment demonstrates evidence for conformance with BAT.

2. Relevant Key Issues

3.1 Site Location

An Environment Impact Assessment Report was completed for the site which considered suitability of the location of the proposed facility. The EIAR covers the requirements of the BAT with regard to assessment of suitability of site location including:

- Consideration of the distance from the boundary of the site to residential and recreational areas, waterways, water bodies and other agricultural or urban sites;
- Taking account of any relevant Waste Management Plans or Development Plans;
- Identification of any groundwater, coastal water or nature protection zones in the area;
- Completion of a site investigation;
- Identification the potential environmental effects and risks; and
- Determination if emission control measures can prevent the developed site posing an environmental risk during its operation.

It can be concluded from the EIAR that the facility will not cause environmental pollution, taking into account the characteristics of the location, the waste types it will handle, the nature of the facility and the control measures to be employed.

3.2 Design Consideration

As part of the design of the proposed development, an EIAR was completed for the site which considered the following key design issues as defined under BAT i:

- Facility location- Location of facility with respect to sensitive receptors; housing; access; adjacent premises
- Type of Facility- Land requirement; layout; site services
- Nature and Quantity of Waste- Environmental control measures; present and future storage requirements
- Water Control - Rainfall; surface water run-off; groundwater protection; containment; flooding risks
- Emergency Planning - Protection of sensitive receptors; preparation and routine review and testing of emergency plan; provision of firewater retention facilities
- Visual Appearance- Landscaping and visual aspect

3.3 Decommissioning

The activity of waste recovery at the facility is proposed to successfully decommission the quarry and return the site to its original landform so that it will eb suitable for use as agriculture.

BAT state that *for a waste transfer and/or materials recovery facility to be decommissioned it must be:*

- *Free of contamination from waste: the facility should be clear of deposited residues, waste and any contamination resulting from the waste transfer activities and materials recovery facilities. The land should be decontaminated to restore it to a state established prior to licensing in agreement with the EPA. For existing facilities the standards for decontamination must be agreed with the EPA; and*
- *Free from continuing emissions: there should be no releases from the site that are required to be managed by the operator, for example contaminated surface water run off, dust, odour, etc.*

It is considered that the site will conform with BAT and that following full restoration / decommissioning of the site that the facility will eb free of contamination from waste and free form continued emissions.

3.4 Environmental Management System (EMS)

As per BAT, *the key environmental issues for the waste transfer stations and materials recovery facilities sector are air emissions and soil contamination (BREF 2004). The following primary measures are considered BAT for the handling and recovery/disposal of waste at a transfer station/materials recovery facility:*

An EMS that incorporates the following features:

- *Management and Reporting Structure.*
- *Schedule of Environmental Objectives and Targets.*
- *Annual Environmental Report (AER).*
- *Environmental Management Programme (EMP).*
- *Documentation System.*
- *Corrective Action Procedures.*
- *Awareness and Training Programme.*
- *Communications Programme.*
- *Waste acceptance procedure.*
- *Waste management system for all incoming wastes and wastes on-site.*
- *Appropriate storage and handling.*

In accordance with the BAT an Environmental Management System (EMS) has been developed for the facility and shall be implemented at the proposed Waste Recovery Facility. The EMS incorporates all relevant features listed and incorporates features specified in the Agency EMS Guidance. Other features listed under BAT considered not be applicable to the subject site have been excluded from the list above. Implementation of the EMS will ensure standards are maintained, including incident and complaints management procedures.

3.5 Waste Acceptance

As per BAT, *controlling the waste input to a transfer station/material recovery facility is an important operational matter that has a direct effect upon the pollution/nuisance potential of the facility. It is essential that measures be introduced to ensure that waste acceptance is restricted to those wastes for which the facility was designed, and which are permitted by the licence.*

The EMS for the facility includes a Waste Acceptance Procedure which shall be implemented. The Waste Acceptance Procedure specifies that the following actions be taken and records be maintained as per BAT:

- *Upon entry into the facility:*
    - *all loads should be weighed;*
    - *any description of the waste should be checked in a dedicated waste inspection/tipping area to confirm they comply with the licence, and*
    - *a record should be made of the waste type, quantity, source and haulier.*
- Basic Characterisation will be undertaken by or on behalf of the waste producer/contractor prior to acceptance of waste at the facility.

- Compliance Testing. Will be undertaken periodical (1 in every 500 loads or as specified by the Agency) to verify the imported waste complies with the waste acceptance criteria for inert soil or criteria as specified by the agency.
- On-Site Verification consisting of visual inspection of each load of waste before and after unloading at the facility.

3.6 Waste Dispatch

Waste to be dispatched from the site is considered to be minimal. Waste generated at the facility may including quarantine material determined unsuitable for acceptance at the facility will be sent for disposal/ recovery in accordance with BAT and shall conform with the following BAT:

- *Waste recovery or disposal should be transported only by an authorised waste contractor to the site of recovery/disposal, in a manner that will not adversely affect the environment and in accordance with the appropriate National and European legislation and protocols.*
- *In advance of transfer to another person, waste should be classified, packaged and labelled in accordance with National, European and any other standards that are in force in relation to such labelling.*
- *All wastes sent for recovery and disposal should be sent to facilities appropriately authorised to accept the particular waste types. Record should be kept of the ultimate disposal/recovery destination facility for the waste and its permit/licence details and issuing authority, if required.*

3.7 Energy Efficiency

The Waste Management Acts 1996 to 2010 require that permitted installations should be operated in such a way that energy is used efficiently. The proposed waste recovery facility has been designed with consideration to energy efficiency in accordance with BAT. The waste recovery facility shall be operated in conjunction with quarry activities (extraction) which shall reduce the overall amount of vehicle movements onsite and haulage trips associated with the facility. The amount of vehicle movements onsite and haulage trips would be significantly more if the quarrying and waste recovery activities were undertaken separately e.g. HGVs hauling extracted material from the site will collect waste for recovery on their return to the facility which will reduce the number of trips and empty vehicle return journeys to/ from the site. This will also reduce the water demands at the facility for wheel washing and electric requirements for operation of the weighbridge and wheel wash. Overall water demand for dust suppression will be reduced as the overall timeframe of facility operations will be shorter than if quarrying and filling were to be undertaken separately.

Solar panels shall be used to provide power to the site office and weighbridge. The EMS for the facility sets out procedures for regular vehicle maintenance and good practices such as ensuring on-site vehicle movements are minimises and engines are switched off when not in use in conformance with BAT.

In accordance with BAT the Environmental Management Plan (EMP) forming part of the EMS for the facility includes for an annual review of the energy efficiency of the facility and sets out targets for improvement.

In the design of the facility, inert waste soil was selected as the “raw material” under waste recovery for use as backfill material to restore the quarry. It was determined that inert soil is the most suitable

material for us as fill material this material is it is unlikely to cause any unacceptable environmental impact.

3. Risk to the Environment

The underlying objective of BAT is to prevent, eliminate, or reduce emissions from processes. Emissions, and hence environmental pollution, can be prevented, eliminated or reduced by:

- proper design of the facility;
- effective management of the facility; and
- the selection of appropriate processes, technologies and facility operations.

The below sets out the techniques for the prevention and minimisation of emissions and nuisances in accordance with BAT. In accordance with BAT the proposed Waster Recovery Facility will be monitored throughout the entire life of the facility with monitoring programmes undertaken as set out under planning and by the Agency.

3.1 Potential Emissions to Air

BAT describe potential emissions to air arising from inert waste transfer and materials recovery facilities as:

- *Dust from operational activities;*
- *Vehicle emissions;*
- *Noise from fixed plant;*
- *Noise and vibration from vehicles and machinery used in waste operations; and*
- *Noise and vibration during handling and removal of wastes offsite.*

3.1.1 Management Techniques

In accordance with BAT the operational procedures and emissions abatement procedure under the EMS for the facility include techniques to minimise and control potential nuisance from dust. The effectiveness of these shall be reviewed as part of the site monitoring; the annual environmental review report and the sites EMS procedures in accordance with BAT.

3.1.2 Control Techniques

Control techniques for dust suppression shall be in compliance with BAT and include:

- Operation of water sprinklers in relevant waste handling areas.
- Regular sweeping of access roadways and areas of hard-standing.

3.1.3 Emission Limits & Monitoring

Dust mitigation measures have been included under EMS procedures to ensure compliance with emission limits of 350mg/m^2/day as set out under planning and in accordance BAT. Monthly dust monitoring shall be undertaken in accordance with planning and licence requirements.

3.2 Potential Emissions to Water (including Groundwater) and Land

BAT describes potential emissions to water (including groundwater) and land arising from inert waste transfer and materials recovery facilities as:

- Run-off – during operations;
- Fuels/oils;
- Effluents; and
- Mud.

3.2.1 Management Techniques

In accordance with BAT, handling and storage of waste will be conducted in a way that does not result in damage to surface water systems. There shall be no direct discharges to surface or ground water from the facility. The site will be operated so to prevent spillage or escape of substances that could pollute the surface water system. Emergency procedures have been included with the EMS for the facility. There will be no fuel/oil storage on site.

3.2.2 Control Techniques

Control techniques for dust suppression shall be in compliance with BAT and include:

- Removal of risks of emissions to groundwater through appropriate controls including implementation of waste acceptance procedures to ensure waste that could cause contamination of ground, groundwater or surface water are not accepted at the facility.
- There shall be no fuel storage onsite. Refuelling via mobile tanker and shall be undertaken in accordance pollution prevention procedures included within the EMS for the facility.
- Emergency procedures for the facility are in place and include the provision of oil spillage kits, absorbent materials or containment booms and staff training in spillage procedures.
- Groundwater monitoring will be undertaken to enable early detection of any contamination of groundwater that may arise from the facility and the setting of trigger levels, where applicable.

3.2.3 Emission Limits& Monitoring

There shall be no direct discharges to surface or ground water from the facility. The Glenbough Stream is believed to be feed by groundwater in the vicinity. In accordance with BAT establishment of existing conditions prior to start-up have been completed for groundwater and shall be completed for the Glenbough Stream.

Groundwater and surface water shall be monitored periodically for parameters as deemed necessary by the Agency. Monitoring results shall be assessed against trigger values as agreed with the Agency and planning Authority (Wexford Co. Council.)

3.3 Potential Nuisances- Litter/ Housekeeping

Waste recovered to site shall be inert soil only and as such should not include litter. Litter could be generated from site office and weighbridge as a result of poor housekeeping. Quarantined waste determined unacceptable at the facility may also include small volumes of waste which may give rise to litter.

3.3.1 Management Techniques

Operational procedures shall include monitoring of litter generation and control of potential nuisance.

3.3.2 Control Techniques

Control techniques for litter prevention shall be in compliance with BAT and include:

- Maintenance of site roads.
- Office and weighbridge waste shall be placed within enclosed bins. Quarantined waste with the potential to give rise to wind-blown litter will be contained within skips and covered.

3.4 Potential Nuisances- Noise & Vibration

BAT states that noise and vibration can arise from the operation of fixed or mobile plant used in waste handling and treatment or when delivering waste to site. This can potentially create a nuisance to site neighbours and the environment.

3.4.1 Management Techniques

A noise assessment was undertaken as part of eth EIAR for the facility including the identification of noise sensitive receptors and completion of baseline noise monitoring. Noise management techniques as specified within the facility EMS for the facility are in compliance with BAT and include:

- *Adequate maintenance of plant and equipment which will contribute to minimising noise levels.*
- *Ensuring that noisy plant and equipment are not used for long periods of time and at*
- *inappropriate times.*
- *Monitoring of patterns of waste delivery to ensure that vehicle movements are avoided during specific periods.*
- *Locating noisy plant and equipment away from residential areas and in enclosed areas where possible.*
- *Carrying out regular monitoring of noise levels.*
- *Investigation and recording of noise complaints.*

3.4.2 Control Techniques

Control techniques for noise abatement shall be in compliance with BAT and include:

- *Maintain site roads to reduce noise and vibration from vehicle movements.*
- *Fit silencing equipment to plant, e.g., baffles/muffles.*
- *Selection of equipment that conforms to EU Noise Standards.*

3.4.3 Emission Limits & Monitoring

Noise mitigation measures have been included under EMS procedures to ensure compliance with emission limits of 55db (day) and 45db (night) as set out under planning and in accordance with EPA *Guidance Note for Noise in Relation to Scheduled Activities*, 2nd Edition, 2006. Monthly noise monitoring shall be undertaken in accordance with planning and licence requirements.

3.5 Potential Nuisances- Vehicles

Vehicles are integral to the operation of a waste recovery facility. Combustion engine vehicles give rise to emissions such as carbon dioxide, carbon monoxide, oxides of nitrogen, hydrocarbons and particulates. Vehicle movements can also generate noise and vibration and vehicle refuelling presents a risk of fuel/oil spillages.

3.5.1 Management Techniques

Vehicle nuisance management techniques shall be in compliance with BAT and include:

- *Vehicles operated by the licensee (on-site and off-site) should be subject to regular maintenance and service programmes to ensure that vehicles are running as efficiently as possible. Procedures for assessing fuel use on site could also be implemented in order to monitor efficiency.*

3.5.2 Control Techniques

Control techniques for vehicle nuisance abatement shall be in compliance with BAT and include:

- *Regular servicing and maintenance of vehicles.*
- *Switching off of vehicle engines when not in use (both on site and visiting vehicles).*
- *Minimising on-site vehicle movements.*

3.6 Potential Nuisances- Mud

Mud falling from vehicles using the site can cause a nuisance to road users.

3.6.1 Management Techniques

Mud nuisance management techniques shall be in compliance with BAT and include:

- A wheel wash shall be provided at the site entrance/exit.
- The site access road is surfaced and shall be well maintained to avoid mud generation and deposit on public road
- Inert waste tipping areas should be kept clear of loose waste that might be picked up by vehicle tyres.

3.6.2 Control Techniques

Control techniques for mud nuisance abatement shall be in compliance with BAT and include:

- Provision of wheel wash.
- Regular inspection of site roads and public highways.

3.7 Vermin and Insects Nuisance

Waste proposed to be accepted at the facility includes inert soil which is non-putrescible and shall not contain material likely to attracted vermin or insects.

3.8 Chemical Storage

There shall be no chemical storage on site and as such no associated environmental risk.

3.9 Infection Control

Clinical waste shall not be accepted at the facility and as such there shall be no potential infection hazards to human health.

3.10 Waste Monitoring

In accordance with BAT waste recovery at the facility will be undertaken and include:

- *The recording in a register of the types, quantities, date and manner of disposal/recovery of all wastes*
- *Waste composition information determined on the basis of any relevant guidance issued by the EPA.*
- *The recording of the quantity (tonnes per annum) of waste accepted and waste storage quantity (cubic metres at any one time).*
- *Generation of Annual waste minimisation report showing efforts made to reduce specific consumption together with material balance and fate of all waste materials.*

4. Conclusions

Based on the above it had been demonstrated that the facility will be operated in such a way that all the appropriate preventative measures are taken against pollution through the application of BAT.

An Environmental Management System has been developed for the proposed waste recovery facility which shall ensure that BAT is applied at the facility and that appropriate pollution prevention measures are undertaken to minimise the risk to the receiving environment. Appropriate abatement measures shall be undertaken at the facility to ensure emissions (dust and noise) are minimised. Monitoring shall be undertaken in accordance with BAT to ensure emission limit values and any trigger values set are in compliance with BAT, planning conditions and the Agency's requirements.

The EMS for the facility will be audited annually ensuring that any new relevant BAT are adopted at the facility.

It is considered that the design of the facility and the proposed operational procedures, control measures and monitoring programme conform with BAT. The facility operators (MSK Silversands ltd.)

are committed to operating the facility in accordance with BAT and in a manner so to minimise impact to the receiving environment.