

NATIONAL BAT COMPLIANCE

The following sections describe how the proposed inert soil waste recovery facility at Usk complies with the relevant requirements of BAT. In the absence of any specific BAT guidance in respect of the proposed waste recovery activity, it is considered that BAT for this sector is best addressed by the guidance given in the Agency's *BAT Guidance Note for Waste Sector : Landfill Activities (December 2011)*, and specifically guidance presented therein in respect of inert waste landfills.

Environment impacts associated with waste recovery activities could include

- (i) Potential dust emissions arising from unloading, placement and compaction of imported topsoil, soil and stone and trafficking of HGV's over unpaved haul roads;
- (ii) Potential carbon dioxide (CO₂) emissions from plant and equipment working at the facility;
- (iii) Potential noise emissions / noise nuisance associated with working plant and HGVs;
- (iv) Potential contaminant emissions to land, surface waters and groundwater, specifically from (unintended) placement of non-inert waste and spills / leaks of fuel and oil;
- (v) Potential nuisance associated with transport of mud onto the local road network;
- (vi) Inadequate planning and financial provision for potential environmental liabilities, closure, restoration and aftercare of the proposed recovery facility;
- (vii) Poor environmental management and control of waste recovery activities at the facility;

The waste materials imported to, managed and recovered at the proposed waste recovery facility at Usk are inert (physically, chemically and biologically unreactive) and will not alter or adversely affect any other matter in contact with it in a way which would give rise to environmental pollution or harm human health. As such, the waste will not generate leachate, landfill gas or odour emissions, nor will it give rise to litter nuisance or attract vermin or birds, which would also create further potential nuisance.

It is considered that each of the potential impacts of the facility can be addressed through the application of the following best available techniques to minimise emissions or to manage / control them.

Air (Dust) Emissions

The following BAT measures in respect of potential air (principally dust) emissions will be implemented at the proposed waste recovery facility at Usk in order to minimise and control dust emissions:

All Activities

- Use of mobile water bowsers to damp down particulate materials across the entire site, as and when required, principally in windy periods during extended dry spells;
- Retain existing perimeter screening mounds / banks and maintain vegetation cover or planting thereon.

Soil Placement and Backfilling

- Damp down particulate materials as and when required;
- Restrict access to areas once they are backfilled / restored;
- Minimise soil handling during adverse (dry, windy) weather conditions and optimise timing of any site operations and/or development works;
- Place and compact imported soil in-situ immediately after being unloaded (to minimise windblown particulate matter);

- Minimise drop heights at all times (to minimise emissions);

Stockpiling

- Minimise on-site stockpiling of imported soils;
- Use water sprays on soil stockpiles when necessary;
- Site stockpiles to be positions to take advantage of shelter from wind;
- Minimise stockpile mound heights at all times (to minimise emissions);

Traffic Movements

- Require traffic to adhere to defined haul routes within the recovery facility;
- Regularly maintain unpaved road sections by grading hardcore to minimise particulate matter generation;
- Maximise separation distances between internal haul roads and sensitive receptors;
- Implement and enforce speed controls on all paved and unpaved roads;
- Direct all HGV traffic exiting the facility through proposed wheelwash;
- Use road sweepers on paved road sections as and when required;

Monitoring

- Undertake dust deposition monitoring close to sensitive receptors around the perimeter of the recovery facility and undertake reviews of ambient emissions at regular intervals to determine the effectiveness of dust management and control systems.

The *BAT Guidance Note for the Waste Sector : Landfill Activities (2011)* and the *Environmental Management Guidelines for the Extractive Industry (2006)*, both published by the EPA, indicate that a total dust deposition limit of 350mg/m²/day measured close to sensitive receptors / at site boundaries is appropriate for extractive activities. This emission limit is deemed to be also appropriate for the backfilling and restoration of the former pit at Usk which is to be achieved by way of the proposed waste recovery activities.

Air (CO₂) Emissions

The backfilling and restoration of the former pit at Usk will, for the most part, entail use of conventional diesel powered HGV trucks and earthmoving equipment (mechanical excavators and/or bulldozers). There is only minor scope to increase the efficiency of HGV's, plant and earthworking equipment and to reduce emissions arising from their use and deployment at the recovery facility.

The following BAT measures are / will be implemented in order increase efficiency and to limit, abate and/or reduce carbon dioxide emissions generated by HGVs and plant at the proposed waste recovery facility:

- Ensure all vehicles, plant and equipment based at the facility are regularly serviced and maintained and operating efficiently;
- Replace plant and/or vehicles at the end of their operational life;
- Ensure plant and equipment are switched off when not in use;
- Minimise, insofar as possible, vehicle movements across the facility
- Review opportunities to increase the proportion of sustainable biofuel used by HGVs travelling to and from the facility, and incentivising its use wherever practicable.

Noise Emissions

The following BAT measures in respect of potential noise emissions will be implemented at the proposed waste recovery facility at Usk in order to minimise and control noise emissions:

Facility Layout / Design

- Retain any perimeter banks or vegetation around the property boundary to provide acoustic as well as visual screening;
- Ensure plant and equipment at the facility work below surrounding ground level within the existing pit to the maximum extent possible in order that former pit faces / perimeter berms can be used to provide additional acoustic screening;

Management and Working Practices

- Ensure noise generating activities within the recovery facility are undertaken in locations where noise attenuation (through separation distance and screening) would minimise the potential noise related impact at nearby noise-sensitive properties;
- Ensure all mobile plant and equipment used at the facility have noise emission levels that comply with the limiting levels defined in EC Directive 86/662/EEC and any subsequent amendments;
- Ensure plant is operated in a proper manner with respect to minimising noise emissions (e.g. minimisation of drop heights, no unnecessary revving of engines, plant used intermittently not left idling);
- Ensure all plant is subject to regular maintenance (i.e. all moving parts kept well lubricated, all cutting edges kept sharpened, the integrity of silencers and acoustic hoods maintained);
- Ensure all plant and equipment at the facility is fitted with effective exhaust silencers which are maintained in good working order to meet manufacturers' noise rating levels. Defective silencers to be replaced immediately.

Traffic

- Ensure deliveries are programmed to arrive during daytime / operational hours only;
- Ensure that, wherever possible, internal haul roads are routed so as to maximise the separation distances to nearby noise-sensitive properties;
- Ensure heavy goods vehicles entering and leaving the site have tailgates securely fastened;
- Ensure all haul roads are kept clean and maintained in a good state of repair (i.e. any potholes would be filled and large bumps removed, to avoid unwanted rattle and "body-slap" from heavy goods vehicles);
- Ensure that delivery vehicles waiting within the facility do not leave their engines running and there that there is no unnecessary revving of engines;

Monitoring

- Undertake noise monitoring close to sensitive receptors around the perimeter of the recovery facility and undertake reviews of emissions at regular intervals to determine the effectiveness of noise management and control systems.

The *Guidance Note for Noise in Relation to Scheduled Activities (2007)* and the *Environmental Management Guidelines for the Extractive Industry (2006)*, both published by the EPA, indicate that a rated noise emission limit of 55dB(A) L_{Ar} during daytime working hours and 45dB(A) L_{Ar} during night-time hours is appropriate for the waste recovery facility.

These emission limits are deemed to be also appropriate for the backfilling and restoration of the former pit at Usk which is to be achieved by way of the proposed waste recovery activities.

Emissions to Land / Water

The proposed waste recovery facility at Usk is located within the Water Framework Directive (WFD) South-Eastern River Basin District. The northern half of the existing pit is indicated to lie within the Kildoon River Sub-Basin and the southern half is in the Greese River Sub-Basin. The application site is close to the boundary between the Eastern and South Eastern River Basin Districts.

There are a number of surface water bodies within the application site. These are essentially groundwater ponds and were formed by former extraction operations, when excavations extended down to the groundwater table. However, it is envisaged that most of the groundwater ponds will be backfilled with natural site-won sand and gravel stockpiled on site prior to subsequent to former ground level with imported soil and stone. There are no other hydrological features on-site.

The closest surface water feature to the site is a surface water channel immediately beyond the eastern boundary of the site, which is likely to be groundwater fed. This channel flows to the River Greese which in turn flows in a southerly direction to its confluence with the River Barrow to the north of Carlow Town.

Rainfall across the application site at Usk percolates down through existing sand and gravel on the pit floor to recharge the underlying groundwater table. There is no direct discharge of surface water off-site to any surface water course. Any storm runoff from placed inert material will infiltrate naturally to the ground.

The application site is underlain by Silurian calcareous greywacke siltstone and shale from the Carrighill Formation which is classified by the GSI as a poor bedrock aquifer and generally unproductive. The sand and gravel deposits which occur locally at the application site and across the surrounding area are not classified by the GSI as an aquifer.

Aquifer vulnerability mapping published by the GSI indicates the vulnerability of the aquifer across the application site varies from Extreme (E) in the west and High (H) in the east. This rating is indicative of the fact that the soils are well-drained and the subsoils consist of sands and gravels which are highly permeable. The high permeability of the sands and gravels means that at the present time, there is little protection to the aquifer from potential contamination by human activities at the ground surface.

Groundwater level data obtained around the application site indicates that groundwater flows broadly in an easterly direction within the sand and gravel deposits. There is no dewatering being undertaken at the application site and recorded groundwater levels at or below the current pit floor level are deemed to be representative of natural, undisturbed groundwater level.

Groundwater quality results from the wells at the facility indicate that the groundwater in the sand and gravel deposits is generally of good quality with low ammonia, phosphate and metals. Traces quantities of hydrocarbons (just above detection limits) were detected around the former quarry infrastructure area at the site entrance.

Although the waste streams imported to the soil waste recovery facility at Usk are inert and expected to be free from contamination, there is a minor risk that the recovery activities could result in contaminant emissions to land and groundwater, specifically from (unintended) placement of non-inert waste, the presence of suspended solids in surface water run-off and spills or leaks of fuel and oil. The following BAT measures will be implemented at the facility to minimise uncontrolled release of polluting materials or liquids / liquors to land, surface waters and groundwater

Land

- Establish waste acceptance procedures and management systems to identify the source of imported waste materials in advance and to confirm that they are inert / acceptable;
- Implement a multi-level soil testing regime for imported waste materials, comprising characterisation testing, compliance testing and on-site verification;
- Ensure that any imported waste which is suspected to be non-inert is transferred to the waste inspection and quarantine area (the existing shed at the infrastructure area) and held there pending receipt of test results;
- Remove any quarantined materials that prove to be non-inert off-site, for disposal or recovery at an authorised waste facility.

Water

- Direct any surface water run-off over backfilled ground to the ponds in the south eastern part of the site where sediment will settle and water will infiltrate to the ground and underlying gravels;
- Continuation of fuel storage at the bunded storage facility at the existing shed. No fuel will be stored across the proposed backfill / restoration area;
- Refuelling of all mobile plant and machinery at the existing paved / hardstand refuelling area located beside the existing shed. No refuelling will occur across the proposed backfilling / restoration area;
- Regular maintenance of all plant, with daily inspections for leaks of fuels, lubricating oil or other contaminating liquids;
- Routine maintenance / repairs of plant and machinery, either under cover in the existing shed or on the paved / hardstand refuelling area beside it. No maintenance or repairs will take place across the proposed backfilling / restoration area. More extensive or non-routine maintenance of plant and machinery will take place at off-site locations;
- Storage of all petroleum-based products (lubricating oils, waste oils, etc.) at a designated storage facility located at the northern end of the site infrastructure area. In order to prevent pollution risk due to accidental leakages, petroleum products and other potentially hazardous chemicals will be stored in smaller drums or intermediate bulk containers (IBCs) on bunded pallets surrounded by protective barriers;
- Regular visual inspection and testing of the integrity of tanks, drums, bunded pallets and double skinned containers;
- Keeping a spill kit and drip trays on site and immediately deploying them when there is an accidental leak from any site plant or equipment. Plant operators will be briefed during 'toolbox' talks and site inductions on where the spill kit is kept and how and when it should be deployed;
- Putting a traffic management system in place to reduce the potential accidents between vehicles, thereby reducing the risk of a collision which could result in a fuel spill; and
- Enforcing a site speed limit to further reduce the likelihood and significance of collisions and hence the possibility of a fuel leak from such a collision.
- Directing all domestic wastewater from the staff welfare facilities to the proposed new septic tank and wastewater treatment system. Only treated effluent will be discharged to ground;

- Maintain and test the integrity of drainage infrastructure, including any drainage pipework and the hydrocarbon interceptor at regular intervals.

Monitoring

- Continue regular monitoring of groundwater quality (at 3 No. existing groundwater wells);
- Undertake ongoing reviews of emissions at regular intervals to determine the effectiveness of on-site water management systems.

It is expected that by implementing these measures, emissions to ground and/or groundwater will meet the quality threshold values for key indicator parameters (such as BOD, suspended solids, total ammonia, total nitrogen and total phosphorous set by the *BAT Guidance Note for Waste Sector : Landfill Activities (2011)* and/or any waste licence issued by the EPA

Environmental Liabilities

Operation of the proposed waste recovery facility could give rise to both known and potentially unknown future liabilities, principally in respect of land and/or groundwater and also, to a lesser extent, to atmosphere. Some potential liabilities could also arise in respect of the future closure, restoration and aftercare of the facility. Failure to make adequate financial provision for these liabilities could give rise to adverse impacts on the environment.

In order to identify and quantify these prospective liabilities, a Closure, Restoration and Aftercare Management Plan (CRAMP) will be prepared in due course. The amount of financial provision required in respect of unexpected facility closure or site remediation following significantly adverse environmental incident will also be determined. The CRAMP will be agreed with the EPA and will also be periodically reviewed and updated by the Applicant as required.

Transport of Mud onto Roads

The backfilling and restoration activities at the former pit at Usk will result in additional traffic movements of HGV's over areas of unpaved ground within the application site and as such, in unfavourable weather conditions, could result in mud being carried off-site and onto the public road network, giving rise to potential health and safety risks to other road users.

The following BAT measures are implemented in order to limit, abate and/or minimise deposition of mud on public roads by HGV's and other vehicles exiting the waste recovery facility.

- Direct all traffic exiting the facility through the existing wheelwash facility and over paved internal roads thereafter out to the public road network;
- Regularly clean and maintain the wheelwash facility;
- Use a road sweeper to clean local public roads as and when required
- Maximise travel over paved road sections within the facility;
- Regularly inspect and maintain any unpaved road sections within the facility so as to minimise potential accumulation of mud on wheels of HGV lorries.

Environmental Management Systems

Dunlavin Land Restoration Ltd. will develop and implement an Environmental Management System (EMS) in respect of future waste recovery activities at Usk. The EMS will be subject to ongoing review and development as required and will identify mitigation measures and management procedures which may be necessary to

- (i) mitigate specific impacts and emissions arising from waste recovery activities and
- (ii) implement best practice environmental management and control measures for soil and stone waste recovery activities.

Emission limit values for the backfilling and recovery activity will be set by any waste licence issued in respect of soil recovery activities by the EPA.

The environmental management measures and BAT techniques outlined above will be reviewed and revised in light of conditions attaching to any waste licence issued by the EPA in respect of waste recovery activities at Usk.

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