APPLICATION

By

Donegal County Council

to

Environmental Protection Agency

for

Waste Licence Review

W0024-02

Ballynacarrick Landfill Site,

Ballintra County Donegal

ATTACHMENTS TO SECTION F

Control and Monitoring

ATTACHMENTS TO SECTION F PROPOSED ENVIRONMENTAL PROGRAMME

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ATTACHMENTS TO SECTION F

Attachment F.1 Treatment, Abatement and Control Systems

Air Emission

Landfill gas emissions from the proposed increase in the final contours at the site will be managed by the current landfill gas extraction system. Existing landfill gas extraction wells will be extended to collect gas from the additional waste to be placed. The landfill gas extraction pipework will be laid onto the new contour and reconnected to the existing landfill gas extraction system. The current landfill gas flare is sufficient to deal with increase in tonnage annually and total waste input overall.

Landfill gas will be flared via the enclosed landfill gas extraction flare. Monitoring and emissions limits will be as per current waste licence requirements. Table F1 of the Waste licence Application Standard forms has been completed.

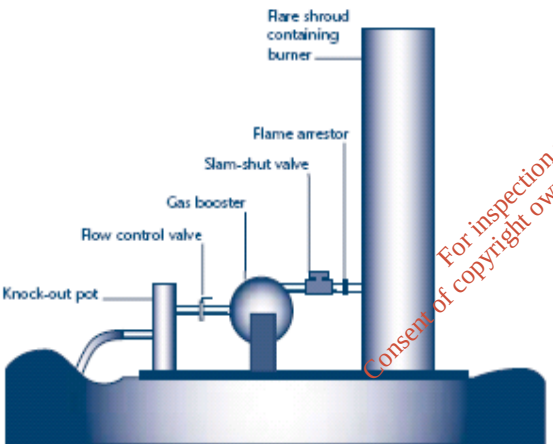

Figure 1 Flare arrangement

Effluent Emission

Leachate within the waste mass is collected by a leachate drainage collection layer below the waste and then transferred by pipeline to the leachate sump at the low point of each cell. From this point the leachate is pumped by a submersible pump and flexible rising main in a side slope riser or leachate extraction tower to the leachate main and to the treatment tanks.

An aeration system has been installed into the leachate holding tank and the leachate is aerated on site prior to disposal to waste water treatment plant in Letterkenny. Leachate management at the site will follow the procedures laid down in the Environmental Protection Agency's manual on Landfill Operational Practices. The leachate management system is shown in IBL0266/110.

The leachate is automatically pumped into the 120m^3 holding tank from the cells when pre-set levels of leachate are reached within the cells and leachate extraction towers Leachate is then pumped from the holding tank via a minimum 22l/s pump to the 1000m^3 treatment tank from 2.30 – 4.30 pm.

A surface water aerator (45Kw) aerates the leachate within the 1000m^3 treatment tank from 4.30pm – 6.30am. There is a settlement period of 2 hours before tankering of the supernatant can begin via a surface water decanter from 8.30am to 2.30 pm before the batch process recommences.

The level in the storage tank is controlled by a float switch, which is linked to main control panel. The level in the storage tank is checked visually twice daily. A minimum freeboard of 0.75m is maintained within each tank. The leachate is removed in 25m^3 storage tankers. The leachate is removed from the leachate tank via flexible pipework attached to solid pipework from the surface water decanter. The flow of leachate from the leachate tank to the tankers is controlled via a surface water decanter. The surface water decanter and its associated pipework are sized to ensure that excessive sediment is not removed from the tank and that the leachate is of the highest possible quality. The removal of leachate is undertaken on a purpose built concrete slab. All surface water and spillages in this area are collected into a gully which passes through a silt trap prior to being pumped back into the leachate treatment tank. The levels of the leachate in the treatment tank are recorded on the SCADA system. This will also apply to the post closure phase.

Attachment F.2 – F.9 Monitoring and Sampling Points

Table F2 to F9 of the Waste licence Application Standard forms have not been completed as monitoring will be undertaken at the locations specified in current waste licence (Schedule D, Table D.1.1). There have been additional landfill gas piezometers as shown in Table 1 installed at the facility since the previous licence was issued. Grid References for all monitoring location is provided in Table 2 to 7.

Collection of all samples will be undertaken by Donegal County Council personnel and analysis will take place at Donegal County Council Laboratory, Magherennan, Letterkenny Co Donegal.

Collection, sampling and transportation procedures, analytical procedures, equipment used, chain of custody procedures, reporting procedures for the sub contractor will be in accordance with Donegal County Council procedures. The laboratory was audited by the EPA in 2006. Only accredited laboratories will be used for the analysis of parameters associated with the ongoing monitoring not undertaken by the Donegal County Council Laboratory.

Attachment F.2 Air

Dust

Dust is monitored three times a year, twice during the period May to September using standard method VD12119. There are a number of activities in a landfill site that could give rise to dust emissions, as follows:

- Construction work
- Depositing of waste
- Depositing of cover material
- General vehicle traffic within the site.

Table 1 Monitoring Locations at the landfill

Landfill Gas	Landfill Gas stations	Dust	Noise	Surface water	Ground water	Leachate
Stations	**Location**	**Stations**	**Stations**	**Stations**	**Stations**	**Stations**
LG1	Waste	DG1	N1	SW1	GW1	L1
LG2	Waste	DG2	N2	SW2	GW2	L3
LG4	Waste	DG3	N3	SW3	GW4	L6
LG5	Waste	DG4		SW4	GW5	
LG6	Waste	DG5				
LG7 to LG16	Perimeter					
LG17	Nearest resident					

Table 2 Grid reference of dust monitoring location

Current Licence Monitoring Locations	Grid references
DG1	193727 367598
DG2	193832 367688
DG3	193495 367541
DG4	193291 367591
DG5	193506 367712

Refer to Drawing IBL0266/110 Environmental Monitoring Points for the dust monitoring locations

Odour

There are no current proposals to actively monitor odour at the site.

The following records will be maintained:

- Daily odour will be recorded as part of site inspection
- Complaints received regarding odours.

Attachment F.3 Surface Water

The future monitoring programme will be in accordance with the conditions of the current waste licence issued by the EPA. Refer to Drawing IBL0266/110 Environmental Monitoring points for surface water locations.

Table 3 Grid reference of Surface water monitoring location

Monitoring Locations	Grid references
SW1	193476 367534
SW2	193865 367564
SW3	193276 367728
SW4	193213 367797

Attachment F.4 Sewer Discharge

There will be no direct discharge to sewer. Leachate and foul water will be transferred to Waste water Treatment works in Letterkenny.

Attachment F.5 Groundwater

The future monitoring programme will be in accordance with the conditions of the current waste licence issued by the EPA. Refer to Drawing IBL0266/110 Environmental Monitoring points and Table 4 for ground water locations.

Table 4 Grid reference of Ground water monitoring location

Current Licence Monitoring Locations	Grid references
GW1	193887 367719
GW2	193480 367532
GW4	193301 367581
GW5	193283 367720

Attachment F.6 Noise

The future monitoring programme will be in accordance with the conditions of the current waste licence issued by the EPA. Refer to Drawing IBL0266/110 Environmental monitoring point locations.

Table 5 Grid reference of noise monitoring location

Noise monitoring locations	Grid reference
N1	193825 367753
N2	193873 367476
N3	193424 367536

Attachment F.7 Meteorological

Meteorological information is supplied by an insitu weather station site and Met Eireann.

Attachment F.8 Leachate

The future monitoring programme will be in accordance with the conditions of the current waste licence issued by the EPA. Refer to Drawing IBL0266/110 Environmental Monitoring point location and Table 6. Sampling and analysis will be carried out for leachate in leachate storage lagoon/tank and two leachate boreholes in waste on a quarterly period and a visual inspection and leachate levels will be monitored on all the points.

Table 6 Grid reference of Leachate monitoring location

Leachate monitoring locations	Grid references
L1	193656 367547
L2	193500 367553
L6	193802 367564

Attachment F.9 Landfill Gas

Landfill Gas

The future monitoring programme will be in accordance with the conditions of the current waste licence issued by the EPA. Refer to Drawing IBL0266/110 Environmental Monitoring point location and Table 7 landfill monitoring locations.

Table 7 Grid reference of landfill gas monitoring location

Current Licence Monitoring Locations	Grid references
LG1	193711 367620
LG2	193774 367583
LG4	193649 367673
LG5	193720 367670
LG6	193780 367685
LG8	193480 367535
LG9	193426 367543
LG10	193336 367570
LG11	193285 367635
LG12	193354 367712
LG13	193417 367728
LG14	193553 367701
LG15	193652 367697
LG16	193842 367693
LG17	193852 367712

APPENDIX F

Standard Forms Table F1

TABLE F.1: ABATEMENT / TREATMENT CONTROL

Emission point reference number *:* Flare (A1-1) Leachate Holding Tank (A2-3)

Control[1] parameter	Equipment [2]	Equipment maintenance	Equipment calibration	Equipment back-up
Temperature and retention time	Enclosed Flare System	As per manufacture's instructions.	As per manufacture's instructions.	SCADA System, spare parts on site
Treatment Time and dissolved oxygen	Surface Aeration System for leachate.	As per manufacture's instructions	As per manufacture's instructions.	SCADA System,

Control[1] parameter	Monitoring to be carried out[3]	Monitoring equipment	Monitoring equipment calibration
Temperature and retention time	Annual and continuous monitoring	Annual monitoring undertaken at stack as per current licence. Continuous monitoring undertaken by detectors in flare.	As per manufacture's instructions.
Treatment Time and dissolved oxygen(DO)	Leachate grab samples undertaken quarterly as per current licence. DO continuous monitoring	DO Probe	As per manufacture's instructions.

[1] List the operating parameters of the treatment / abatement system which control its function.
[2] List the equipment necessary for the proper function of the abatement / treatment system.
[3] List the monitoring of the control parameter to be carried out.

TABLE F.2 to F.8 : EMISSIONS MONITORING AND SAMPLING POINTS - (1 table per media)

Emission Point Reference No(s). : **Not Applicable**

Parameter	Monitoring frequency	Accessibility of Sampling Points

TABLE Ff: Fugitive ENVIRONMENT MONITORING AND SAMPLING LOCATIONS (1 table per media)

Monitoring Point Reference No : **Not Applicable**

Parameter	Monitoring frequency	Accessibility of Sampling point