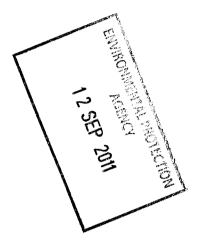


Donegal County Council Central Laboratory, The Kube, Magheranan, Letterkenny, Co. Donegal

:

Tel: [074] 91 22787 Fax: [074] 91 61304



8th September, 2011.

Ms Anna Bolger, EPA Headquarters, P.O. Box 3000, Johnstown Castle Estate, Co. Wexford.

Dear Ms Bolger,

uposes only any offer use. Enclosed please find Drumaboden Landfill licence review application. Consent of copyright c

Yours sincerely,

Anne Howso

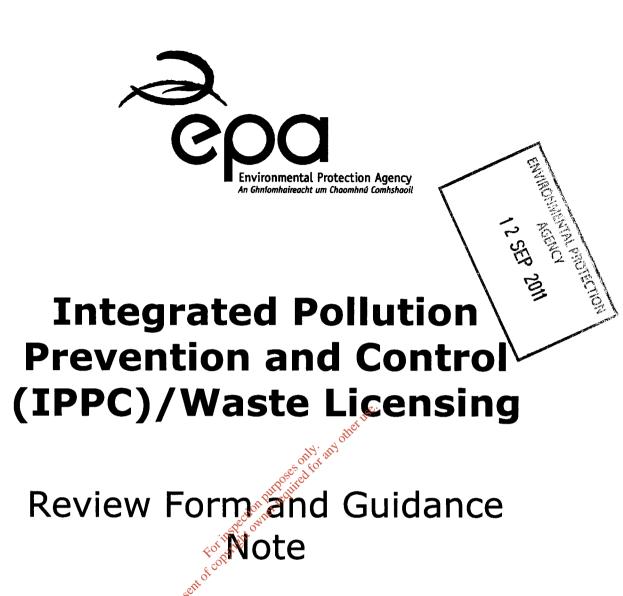
PP Julie McMahon Executive Engineer.

enc.

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for the purposes of

EC Environmental Objectives (Surface Waters) Regulations 2009

(Office use only)	90 63- OF
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Environmental Protection Agency P.O. Box 3000, Johnstown Castle Estate, Co. Wexford Lo Call: 1890 335599 Telephone: 053-9160600 Fax: 053-9160699 Web: <u>www.epa.ie</u> Email: info@epa.ie

INTRODUCTION

This Form is for the purposes of a review of an IPPC/Waste Licence in order to ensure that all authorisations under the *EPA Act 1992 to 2007* and the *Waste Management Acts 1996 to 2010* having discharges liable to cause water pollution are in compliance with the *EC Environmental Objectives (Surface Waters) Regulations 2009*.

While every effort has been made to ensure the accuracy of the material contained in the Review Form, the EPA assumes no responsibility and gives no guarantees, undertakings and warranties concerning the accuracy, completeness or up-to-date nature of the information provided herein and does not accept any liability whatsoever arising from any errors or omissions.

The Review Form and all supporting information shall be submitted to the Headquarters of the Agency in a format of a signed original, one hardcopy and two copies on CD-Rom. In cases where an Environmental Impact Statement (EIS) is required in support of the Review Form, a signed original, one hardcopy plus 16 copies (or 18 copies if the activity is within Energy sector) on CD-Rom shall be submitted.

All pages, including maps/drawings/plans, shall be no larger than A3 size. All files on CD-Rom shall be submitted in searchable PDF format and be no larger than 10MB each in size. All CD-Roms shall be labelled with the Licensee's name, Licence Register Number, address of the activity and name of the file (i.e. Review Form).

Introduction

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SECTION A: GENERAL

A.1 Licensee

Name*:	Donegal County Council	
Address:	County House	
	Lifford	
	Co. Donegal	
Tel:	074 91 72222	
Fax:	074 91 41205	
e-mail:	info@donegalcoco.ie	

* This should be the name of the Licensee which is current on the date this IPPC/Waste Licence Review Form is lodged with the Agency. It should be the name of the legal entity (which can be a limited company or a sole trader). A trading/business name is not acceptable.

Name and Address for Correspondence

.

Only documentation submitted by the Licensee and by the nominated person will be deemed to have come from the Licensee.

Name:	Julie McMahon
Address:	County Laboratory
	Donegal County Council
	The Kube, Thorn Rd, Magheranan, 🔊 📎
	Letterkenny, Co. Donegal
Tel:	074 91 22787
Fax:	074 91 61304 e ^{ctro} nt ^{er}
e-mail:	julie.mcmahon@donegal.coco.ie
	FORTHE

Address of registered or principal office of Body Corporate (if applicable)

Address:	N/A	Collec		
Company Register				
Register No. Tel: Fax: e-mail:				
Fax:		······	********	

A.2 Location of Activity

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Name:	Drumaboden Landfill Site
Address*:	Drumaboden
	Kilmacrenan
	Co. Donegal
Tel:	N/A
Fax:	N/A
Contact Name:	Julie McMahon
Position:	Executive Engineer
e-mail:	julie.mcmahon@donegalcoco.ie

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* Include any townland.

National Grid Reference	216722 421846
(12 digit 6E,6N)	

Location maps (no larger than A3), appropriately scaled, with legible grid references should be enclosed in Attachment Nº A.2. The site boundary must be outlined on the map in red colour.

Geo-referenced digital drawing files (e.g. AutoCAD files) in Itish Grid projection of the site boundary and overall site plan, including labelled emission points to surface water and ei regg For inspection purpose their monitoring and sampling locations, are also required.

Plans enclosed.

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SECTION B: EMISSIONS

B.1 Emissions to Surface Waters

Describe the nature of emissions from the activity to receiving surface waters. Specify which of these emissions are process discharges and storm/surface water discharges.

ALC: NOTE

Drumaboden Landfill Site is a fully restored, unlined, former municipal landfill facility. Leachate from the landfill is captured in a toe drain around the perimeter of the site and pumped into a secondary treatment system. The treatment plant is a Bord na Mona Puraflo system. Following treatment effluent is discharged initially into a pipeline and effluent quality is sampled at location L1; effluent is then discharged into the River Leannan at surface water sampling location S5.

Tables B.1(i) and B.1(ii) should be completed.

Please note that monitoring of the discharge(s) for the purposes of Table B.1(ii) shall be undertaken for the list of compulsory parameters listed in Table D.1(i). Where other relevant substances have been identified, during the Assessment of Impact on Receiving Surface Water requested under Section D.1 of this Review Form, monitoring of the discharge upstream and downstream for the relevant parameters shall also be included.

A summary list of the emission points, together with maps/drawings (no larger than A3) and supporting documentation should be included as **Attachment N^o B.1**. The locations of the emission point L1 and surface water sampling location S5 referred to

above is shown in the monitoring location plans included in Attachment A1.

B.2 Tabular Data on Emission Points to surface water

Licensees should submit the following information for each emission point to surface water:

Point Code	Easting	Northing	Verified	Emission
Provide label ID's (e.g. SW1, SW2*)	6E-digit GPS Irish National Grid Reference	6N-digit GPS Irish National Grid Reference	Y = GPS used N = GPS not used	e.g. Ammonia (as N), Biochemical oxygen dem
L1	216783	421990	Y	and Ammonia (N) pH BOD SS Ortho P

* SW = Surface Water

An individual record (i.e. row) is required for each emission point. Acceptable file formats include Excel, Access or other upon agreement with the Agency.

SECTION C: CONTROL & MONITORING

Describe the proposed technology and other techniques for preventing or, where this is not possible, reducing emissions from the installation/facility.

C.1 Treatment, Abatement and Control Systems

An overview/summary of treatment/abatement systems for effluent emissions should be included together with schematics as appropriate.

A Bord na Mona Purflo system treats leachate collected from the waste body before the effluent discharges to the River Leannan.

Leachate is collected by gravity in a cut-off trench, directed to a storage chamber and pumped from there into the treatment system. The leachate pumps, comprising a duty and stand-by pump, are capable of delivering 40m3 per day.

Treatment of the leachate is by means of filtration through a 2m thick peat bed, which is housed in a 25m by 16m lined lagoon providing a surface area of 400m2.

Leachate is then discharged by gravity via a manhole chamber at which Emission Point L1 is located, and is piped to the River Leannan and enters at ambient monitoring location S5 as shown on site layout drawings included on Annex 1.

The system is maintained annually. This involves the control of vegetation and maintenance of the pumps, chambers and pipework of the pumps and pipework of the pipework of

For each Surface Water Emission Point identified complete Table C.1(i).

Supporting information should form Attachment Nº C.1.

Normal operation and variations for start-up and shutdown should be described. Anticipated malfunctions and known problems associated with the treatment should be highlighted.

Proposed monitoring to be undertaken for influent(s) to treatment plant, and intreatment monitoring required for the management of the treatment plant should be detailed.

C.2 Monitoring and Sampling Points

Identify monitoring and sampling points and outline proposals for monitoring emissions to surface water bodies.

Surface water (i.e. the River Leannan) is monitored at five locations around the emission and at the emission point (ambient monitoring). These are labelled S1, S2, S4, S5 & S6. inclusive and their locations are shown on then site layout plans contained in Annex 1. The outlet of the puraflo system is monitored and this emission point is labelled L1. Table C2(i) has been completed for L1 and Table C2(ii) has been completed for S1, S2, S4, S5 & S6 as per the requirements of the waste licence.

Table C.2(i) should be completed (where relevant) for emissions to surface water.

Where ambient environment monitoring is carried out or proposed, Table C.2(ii) should be completed as relevant for each environmental medium and at least 12 samples should be taken at regular intervals.

Include details of monitoring/sampling locations and methods.

Supporting information should form **Attachment N^o C.2**.

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C.3 Tabular Data on Monitoring and Sampling Points

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Point Code	Point Type	Easting	Northing	Verified	Pollutant
Provide label ID's	M=Monitori ng S=Sampling	6E-digit GPS Irish National Grid Reference	6N-digit GPS Irish National Grid Reference	Y = GPS used N = GPS not used	e.g. Ammonia (as N), Biochemical oxygen demand
L1	S	216783	421990	Y	L1: Ammonia (N) pH BOD SS ortho P
S1 S2 S3 S4 S5	s s s s	216470 217320 217012 216790 216577	421908 422185 422110 4220923 and 4220923 and 42003 and 420000 and 42000000 and 40000000000 and	Y Y Y Y	Surfacewaters: Ammonia (N) BOD COD Chloride DO Conductivity pH SS Cadmium Calcium Chromium Calcium Chromium Copper Iron Lead List I/II org. Magnesium Manganese Mercury Potassium Sulphate Sodium Tot Alkalinity Ortho phosphate TON Zinc

Licensees should submit the following information for each monitoring and sampling point:

An individual record (i.e. row) is required for each monitoring and sampling point. Acceptable file formats include Excel, Access or other upon agreement with the Agency.

Point source monitoring/sampling refers to monitoring from specific emission points (e.g. from a wastewater treatment plant). Ambient monitoring includes monitoring of river quality upstream/downstream of an effluent discharge.

SECTION D: EXISTING ENVIRONMENT & IMPACT OF THE ACTIVITY

D.1 Assessment of Impact on Receiving Surface Water

Describe the existing environment in terms of water quality with particular reference to environmental quality standards as specified within the *EC Environmental Objectives* (*Surface Waters*) *Regulations 2009 S.I. No. 272 of 2009*. Table D.1(i) should be completed as directed.

Indicate whether or not the activity complies with the requirements of the EC Environmental Objectives (Surface Waters) Regulations 2009 S.I. No. 272 of 2009.

The Licensee should conduct an assessment of impact of discharge(s) from the installation/facility on receiving surface water. In undertaking this assessment the Licensee shall have particular regard to substances used in the manufacturing processes likely to result in discharges of those substances listed in the EC Environmental Objectives (Surface Waters) Regulations 2009 S.I. No. 272 of 2009. When completing any assimilative capacity calculations have regard to the Water Services Training Group Waters' 'Guidance to Applicant _ Discharae to Surface available at http://www.wsntq.ie/publications/index.asp and other standard guidance.

If the process discharges are to coastal, transitional waters or lakes, the assessment may require a modelling study. The modelling study shall include estimates on what the resultant concentrations of the permitted substances in the receiving water body will be upon discharge at the current licence limits.

Regardless of the receiving water body, type, determine the maximum allowable discharge concentrations to achieve compliance with the 95%ile good status limits. N.B. If the discharge is to a water body that is already achieving high status, or if the discharge is to waters draining to the surface water bodies identified under the First Schedule of the *EC Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009*, compliance must be with 95%ile **high** status limits.

State distance from the process discharges to a nearest downstream water dependent Protected Area. Include the name and code of this Protected Area.

Full details of the assessment, including a copy of an Environmental Impact Statement if it was required for the purposes of obtaining planning permission(s), should be submitted as **Attachment** N° **D.1.1**.

Where necessary, the Licensee should supply detailed information on the proposals to comply with the requirements of the *EC Environmental Objectives (Surface Waters) Regulations 2009 S.I. No. 272 of 2009* including a detailed timeframe for any proposed works in **Attachment N^o D.1.2**.

Existing Environment

Drumabodan Landfill Site currently discharges directly into the River Leannan. A summary of the information available from the North Western River Basin Management Plan for the water body within which the site is located shows that it lies within a protected area for drinking water abstraction, it also lies within the boundaries of the Gartan Lough and Lough Akibbon SAC (Site Code - 000158), and the River Leannan Freshwater Pearl Mussel catchment (Site Code - 002176).

The waterbody is currently achieving Poor Ecological Status in terms of Water Framework Directive reporting as described in the North Western River Basin Management Plan as a result of poor Macro-invertebrate results. As per WFD standards, this waterbody must achieve high status as the

discharge is to a surface water body identified under the First Schedule of the EC Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009. The water body has been given an extended deadline to 2021 to achieve these objectives given its highly impacted status and need to achieve high status.

Assessment of the Impact of the Discharge

Under Schedule E of the site's Waste Licence issued by the Environmental Protection Agency, Leachate Emission Limits are as follows;

Parameter	Limit	EQS
Toxicity	10 TU	N/A
pH	6-9	6-9
BOD	20 mg/l	2.6 mg/l
Suspended Solids	30 mg/l	N/A
Total P (as P)	2 mg/l	N/A
Total Ammonia (as N)	25 mg/l	0.14 mg/l

The assimilative capacity was calculated to measure the receiving water body's ability to assimilate the pollutants, based on the above emission limit values, whilst still maintaining an acceptable level of water quality. This measurement is only indicative however and was supported with a Mass Balance calculation to determine the resultant concentration in the receiving water based on the above emission limit values. The results of these calculations for the receiving waters of the discharge are shown below and an assessment of the impact on the receiving water quality has been made in accordance with the European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009).

Calculations have been applied to those parameters which have been assigned an Environmental Quality Standard in the above regulations (S.I. No. 272 of 2009). Whilst Suspended Solids does not have an EQS under the Surface Water Objectives, a limit of 35 mg/l was used, as per the Guidance, Procedures and Training on the Licensing of Discharges to Surface Waters and to Sewer for Local Authorities. This guidance states, 'For waters designated under the European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009, no artificially elevated levels in siltation are permitted... However, as a general rule a maximum limit of 35 mg/l should be applied'. The calculations are not applicable to other parameters within the licence as environmental quality standards are not available, i.e. Toxicity and Total Phosphorous.

Assimilative Capacity						
	F	C _{max}	C _{back}			
Parameter	River flow u/s discharge (95% flow m ³ /s)	Max permissible conc (EQS) mg/l	Conc pollutant in river u/s	Assim Capacity (kg/day)		
Susp Sols	0.654	35	1.8	1875.99		
BOD	0.654	2.2	2.316	-6.55		
Total ammonia	0.654	0.09	0.009	4.58		

Mass Balance						
	F	C _{back}	f	С	Т	
Parameter	River flow u/s discharge (95% flow m ³ /sec)	Conc pollutant in river u/s	Flow of discharge	max conc of pollutant in the discharge	Mass Balance	
Susp Sols	0.654	1.8	0.00056	30	1.82	
BOD	0.654	2.316	0.00056	20	2.33	
Total ammonia	0.654	0.009	0.00056	2	0.01	

A calculation for the 'percentage of headroom used', which is utilised when determining whether or not a licence should be reviewed, is shown below. The guidance, "Procedures and Training on the Licensing of Discharges to Surface Waters and to Sewer for Local Authorities" states that if less than 25% of the headroom is used then a review of the licence is not required. Based on these calculations it can be seen that the emission limit values for suspended solids and ammonia are acceptable. Having analysed the monitoring data over recent years the surface water quality is meeting the environmental quality standards set out for Suspended Solids, Ammonia and Phosphates, and pH values are also complying with the range of 6 to 9. BOD levels are slightly elevated above the EQS stipulated for High Status sites as per the European Communities Environmental Objectives (Surface Waters) Regulations 2009. However, the upstream monitored concentration for BOD is already exceeding the EQS and the calculated mass balance is only 0.014 mg/l above this monitored level. As a result it can be assumed that it is activities upstream from the landfill site that are affecting the BOD concentration of the water course.

		Headroom	<u>1</u>		
	C _{max}	C _{back}		Т	
Parameter	Max permissible conc (EQS) mg/l	Background upstream conc	Headroom mg/l	Resultant conc due to discharge	Percentage Head room utilised%
Susp Sols	35	1.8	33.2	1.82	0.07
BOD	2.2	2.316	-0.116	2.33	-13.04
Total ammonia	0.045	0.009	0,036	0.01	4.73

It is notable that the surface water quality monitoring data downstream of the discharge point does not show any significant difference to the quality recorded upstream, so it is apparent that the discharge is not having a deteriorating effect on the quality of me water channel in terms of the parameters

According to the Local Authority Guidance manual (as referenced above), where conditions in the river upstream of the discharge point are failing to achieve Good Status this should not automatically preclude the authorisation of the discharge. In such a case, regardless of how well the effluent being discharged is treated, the target EQS cannot be met. This is the case upstream of the landfill site where the monitoring data is exceeding the High Status EQS for BOD.

As the water course which the landfill site is discharging to lies within the Leannan FPM Catchment High Status must be achieved. If it can be assumed that the Programme of Measures put in place under the River Basin Management Plan for the NWIRBD to restore the river to High Status is successful, an adjusted background concentration (CA) can be used in the calculations highlighted above.

The adjusted background concentration for High Status waters is taken as High Status EQS less 50% of the difference between Good Status EQS and High Status EQS. This gives C_A for BOD of 2.0 mg/l. The calculations for BOD based on the adjusted background concentrations are provided below.

Assimilative Capacity				
	F	C _{max}	C _A	
Parameter	River flow u/s discharge (95% flow m ³ /s)	Max permissible conc (EQS) mg/l	Adj Conc pollutant u/s	Assim Capacity (kg/day)
BOD	0.654	2.2	2.0	11.30

Mass Balance

	F	C _{back}	f	С	Т
Parameter	River flow u/s discharge (95% flow m ³ /sec)	Adj Conc pollutant u/s	Flow of discharge	max conc of pollutant in the discharge	Mass Balance
BOD	0.654	2.0	0.00056	20	2.02

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Headroom					
	C _{max}	CA		Т	
Parameter	Max permissible conc (EQS) mg/l	Adj Conc pollutant u/s	Headroom mg/l	Resultant conc due to discharge	Percentage Head room utilised%
BOD	2.2	2.00	0.2	2.02	7.70

These calculations show that if the river was restored to High Status, the resultant concentration downstream of the discharge would not exceed the High Status EQS and so the discharge will not impact on the status classification of the water body.

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D.2 Environmental Considerations and Best Available Techniques (BAT)

Describe, in outline, the main alternatives, if any, to the proposals contained in the Review Form.

N/A

Describe any environmental considerations which were made with respect to the use of cleaner technologies, waste minimisation and raw material substitution. N/A

Describe the measures proposed or in place to ensure that:

- (a) the best available techniques are or will be used to prevent or eliminate or, where that is not practicable, generally reduce an emission from the activity;
- (b) no significant pollution is caused;
- (c) waste production is avoided in accordance with *Council Directive 75/442/EEC of 15 July 1975 on waste*; where waste is produced, it is recovered or, where that is technically and economically impossible, it is disposed of while avoiding or reducing any impact on the environment;
- (d) energy and other resources are used efficiently;
- (e) the necessary measures are taken to prevent accidents and limit their consequences; and,
- (f) the necessary measures are taken upon definitive cessation of activities to avoid any pollution risk and return the site of operation to a satisfactory state.

This section should present a statement on energy efficiency at the site to include, where appropriate, an energy audit with reference to the EPA Guidance document on Energy Audits. Licensees should have regard to Section 5 of the EPA Acts 1992 and 2003 in selecting BAT and in particular the following:

- The use of low-waste technology;
- The use of less hazardous substances;
- The furthering of recovery and recycling of substances generated and used in the process and of waste where appropriate;
- Comparable processes, facilities or methods of operation, which have been tried with success on an industrial scale;
- Technological advances and changes in scientific knowledge and understanding;
- The nature, effects and volume of the emissions concerned;
- The commissioning dates for new or existing facilities;
- The length of time needed to introduce the BAT;
- The consumption and nature of raw materials, including water, used in the process and their energy efficiency;
- The need to prevent or reduce to a minimum the overall impact of the emissions on the environment and the risks to it;
- The need to prevent accidents and to minimize the consequences for the Environment; and,
- The information published by the Agency in the form of sectoral BAT Guidance documents and the relevant BREF documents published by the EC (available for download at <u>http://eippcb.jrc.es/</u> and at <u>www.epa.ie</u>).

As described in detail previously in this document, this is a fully restored landfill facility. The technology and construction methods used for its restoration were agreed as BAT by the EPA and all engineering methods and leachate treatment technology were approved directly by the EPA as part of the restoration process.

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In terms of energy efficiency, where possible gravity flow has been utilised in the collection of leachate.

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SECTION E: STATUTORY REQUIREMENTS

E.1 Best Environmental Practices – Compliance with Legislation

Demonstrate if the best environmental practices are in place for control of diffuse emissions from the installation/facility as set out in the following legislation:

- (a) a specification prepared by the Agency in accordance with Section 5 of the *Environmental Protection Agency Act 1992* as amended by Section 7 of the *Protection of the Environment Act 2003*;
- (b) the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001) as amended by the Urban Waste Water Treatment (Amendment) Regulations 2004 (S.I. No. 440 of 2004) or any future amendment thereof;
- (c) the European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2009 (S.I. No. 101 of 2009) or any future amendment thereof;
- (d) the Local Government (Water Pollution) Act, 1977 (Control of Cadmium Discharges) Regulations 1985 (S.I. No. 294 of 1985);
- (e) the Local Government (Water Pollution) Act, 1977 (Control of Hexachlorocyclohexane and Mercury Discharges) Regulations 1986 (S.I. No. 55 of 1986);
- (f) the Local Government (Water Pollution) Acts, 1977 and 1990 (Control of Carbon Tetrachloride, DDT and Pentachlorophenol Discharges) Regulations 1994 (S.I. No. 43 of 1994), and,
- (g) measures or controls identified in a pollution reduction plan for the river basin district prepared in accordance with Part V of the *EC Environmental Objectives (Surface Waters) Regulations 2009 S.I. No. 272 of 2009* for the reduction of pollution by priority substances or the ceasing or phasing out of emissions, discharges and losses of priority hazardous substances.

As a licensed, closed landfill facility the EPA required Donegal County Council to carry out formal restoration works in order to control emissions of mainly gas and leachate from the waste body. In consultation with, and under the direction of, the EPA a fully engineered cap and associated infrastructure for the collection and treatment of leachate and collection of landfill gas, were designed and constructed. These works were completed in 2007. The treatment system for leachate is described in detail previously in this document, see Section C1.

The detailed monitoring programme associated with the Waste Licence for the site (EPA ref W0063-1) continues post-restoration.

The above is all in line with the Waste Management Act 1996.

Declaration

SECTION F: DECLARATION

I certify that the information given in this Review Form is truthful, accurate and complete.

I give consent to the EPA to copy this Review Form for its own use and to make it available for inspection and copying by the public, both in the form of paper files available for inspection at EPA and via the EPA's website. This consent relates to this Review Form itself and to any further information, submission, objection, or submission to an objection whether provided by me as Licensee, any person acting on the Licensee's behalf, or any other person.

Signed by: Acer	کامچ Date:	7/5/11.
(on behalf of the organisation		, 1 ^{58.}
Print signature Tot	PEOPLES,	any other
Position in organisation:	Directary	Devner.
	corinspection inc.	
	Consent of copyright own C	Company stamp or seal:
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