DUNSINK LANDFILL
ANNUAL ENVIRONMENTAL REPORT 2012

REPORTING PERIOD: JANUARY TO DECEMBER 2012

WASTE LICENCE REGISTER NO. W0127-01

FINGAL COUNTY COUNCIL
COUNTY HALL
MAIN STREET
SWORDS
COUNTY DUBLIN

Comhairle Contae Fhine Gall
Fingal County Council

TABLE of CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

The Environmental Protection Agency (EPA) granted a waste licence (register no. 127-1) to Fingal Council in respect of the above facility on 9th January 2004. From July 2006 the register number was changed to W0127-01. This licence is for the closure and restoration of areas previously landfilled. Under its terms, the Council is required to restore and remediate the facility, to install infrastructure to monitor and manage landfill gas and leachate emissions, and to cap previously filled areas using inert materials. These works are to be completed within three years of the date of grant of the licence. In accordance with the requirements of condition 11.6 of the Waste Licence, an Annual Environmental Report (AER) for the facility must be submitted to the Environmental Protection Agency on an annual basis.

1.1 REPORTING PERIOD

The reporting period for the AER is 1st January to 31st December 2012. This is the ninth AER for the facility as required by the waste licence.

1.2 FACILITY LOCATION

Fingal County Council has responsibility for the management and operation of the facility. The facility is located at:

Dunsink Landfill,
Dunsink Lane,
Finglas,
County Dublin.

Access to the landfill is now from the Elm Green end of Dunsink Lane only, Irish National Grid 238886 (Northings) 311766 (Eastings). Figure 1 presents a map of the facility and the surrounding locations.

1.3 ENVIRONMENTAL POLICY FOR DUNSINK LANDFILL

Comply with the terms of waste licence W0127-01 and all other relevant legislation and codes of practice.

Strive for continuous improvement in the running of the facility; in order to minimise the effects of the landfill on the environment.

Create better awareness and training for all staff involved in the running of the landfill.

Develop a good relationship with local residents around Dunsink for the betterment of the surrounding area.

FIGURE 1: DUNSINK LANDFILL SITE LOCATION AND SITE ACCESS

2.0 SITE DESCRIPTION

Dunsink Landfill is situated southwest of Finglas, County Dublin (National Grid Reference 239500E, 310500N). It is bounded by Dunsink Lane to the south, Rathoath Road to the east, the M50 motorway to the Northwest and Cappagh Hospital to the North. It is approximately 61ha. in extent. The most elevated point of the site (as measured in 2010) lies at 100m on the western side of the site. The base of the landfill varies topographically but is estimated to average from 65-70m.

The landfill opened in 1976. Approximately 4,400,000 tonnes of waste is estimated to have been deposited at the facility to June 1996. The landfill subsequently phased to closure, culminating in the closure of the civic amenity in 2003. A landfill gas utilisation plant was installed on site in 1996.

The original application for a waste licence was submitted to the Environmental Protection Agency in September 1999. An amendment to the original application was sought in February 2003. A Proposed Decision was issued in August 2003. Waste Licence 127-1 was issued in January 2004.

2.1 LICENCED WASTE ACTIVITIES AT THE FACILITY

On January 9th 2004 Fingal County Council was licensed to carry out the following waste activities at Dunsink Landfill, Finglas, County Dublin subject to twelve conditions.

Licensed Waste Disposal Activities, in accordance with the *Third Schedule* of the Waste Management Act 1996.

Class 4 Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons:

This activity is limited to:

The provision and use of a leachate lagoon to temporarily store leachate generated in the landfill, prior to discharge to the public foul sewer; and

The provision and use of a surface water attenuation pond to control the quality and quantity of the surface water run-off from the site.

Licensed Waste Recovery Activities, in accordance with the *Fourth Schedule* of the Waste Management Act 1996.

Class 2 Recycling or reclamation of organic substances, which are not used as solvents (including composting and other biological transformation processes):

This activity is limited to the composting of green waste, the recycling / reclamation of cardboard, paper and waste oil at the facility.

Class 3 Recycling or reclamation of metals and metal compounds:

This activity is limited to the recycling of ferrous / non-ferrous metals and white goods.

Class 4 Recycling or reclamation of other inorganic materials:

This activity is limited to the recycling or reclamation of subsoil and topsoil (for the restoration of the site) and dry recyclables at the bring centre.

Class 9 Use of any waste principally as a fuel or other means to generate energy:

This activity is limited to the utilisation of landfill gas for the generation of electricity.

Class 11 The use of waste obtained from any activity referred to in a preceding paragraph of this Schedule:

This activity is limited to the use of suitable subsoil and topsoil and composted material for the restoration programme.

Class 13 Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced:

This activity is limited to the storage of recyclable waste prior to recovery off site and the storage of soil on site for the restoration programme.

3.0 EMISSIONS AND INTERPRETATION OF MONITORING RESULTS

3.1 GROUNDWATER

There are eight groundwater stations (BH3, BH4, BH16, BH18, BH28, BH-29, BH31 and BH32) listed in Schedule D.1 of the waste licence. BH28 listed in Table D.1.1 of the licence was not installed however; BH27 was added to the monitoring infrastructure under agreement with the *Environmental Protection Agency.* Borehole monitoring recorded leachate characteristics from BH29 suggesting that it was a potential migration pathway to groundwater for leachate. It was therefore decommissioned on 14th March 2005, upon agreement with *The Agency*. Two additional groundwater stations (BH33 and BH34) were added to the sampling programme upon agreement with *The Agency*, these were installed on Dunsink Observatory land between the 14th and 16th March 2005. BH18 was destroyed during slope stability work in August 2006 and was replaced as BH18_R on 7th September 2006. BH18_R was decommissioned during the Q1 of 2011 and replaced with BH35 during the same quarter. BH34 became damaged in 2011 and was replaced in 2012 by a new borehole, BH34N installed adjacent. The grid references for these are shown in Table 1. The sample locations are illustrated in Figure 2.

Condition 6.4.1 requires the licensee to submit to the EPA for its agreement, groundwater monitoring trigger levels in accordance with the requirements of Directive 1999/31/EC for one upgradient and two downgradient monitoring Boreholes. This analysis was conducted and trigger levels were proposed to the EPA in February 2005 (Reference: FCC-127-1-2005-006), Appendix I. These were reviewed at the end of 2006, along with an analysis of control and trigger levels for BH33 & BH34.

Table 1: Groundwater Monitoring Locations

Groundwater Borehole Monitoring Location	Eastings	Northings	Classification
BH3	310665	239505	Deep Groundwater
BH4	310650	239490	Shallow Groundwater
BH16	311340	239085	Deep Groundwater
BH18_R	Decommissioned		
BH27	310030	238720	Deep Groundwater
BH28	Not Installed		
BH29	Decommissioned		
BH31	311765	238820	Shallow Groundwater
BH32	311770	238800	Deep Groundwater
BH33	310735	238724	Deep Groundwater
BH34	310719	238725	Shallow Groundwater
BH34N	310717	238724	Shallow Groundwater
BH35	311158	239456	Deep Groundwater

Detailed analysis reports are contained in Appendix I. The results obtained have been compared to the Interim Guideline Values of EPA document "Towards Setting Guideline Values for the Protection of Groundwater Ireland", 2003 and proposed trigger levels. The Threshold Values of European Communities (Groundwater) Regulations S.I. 9 of 2010 have also been cited for reference since 2011. The following sampling programme was completed in 2012 (Table 2).

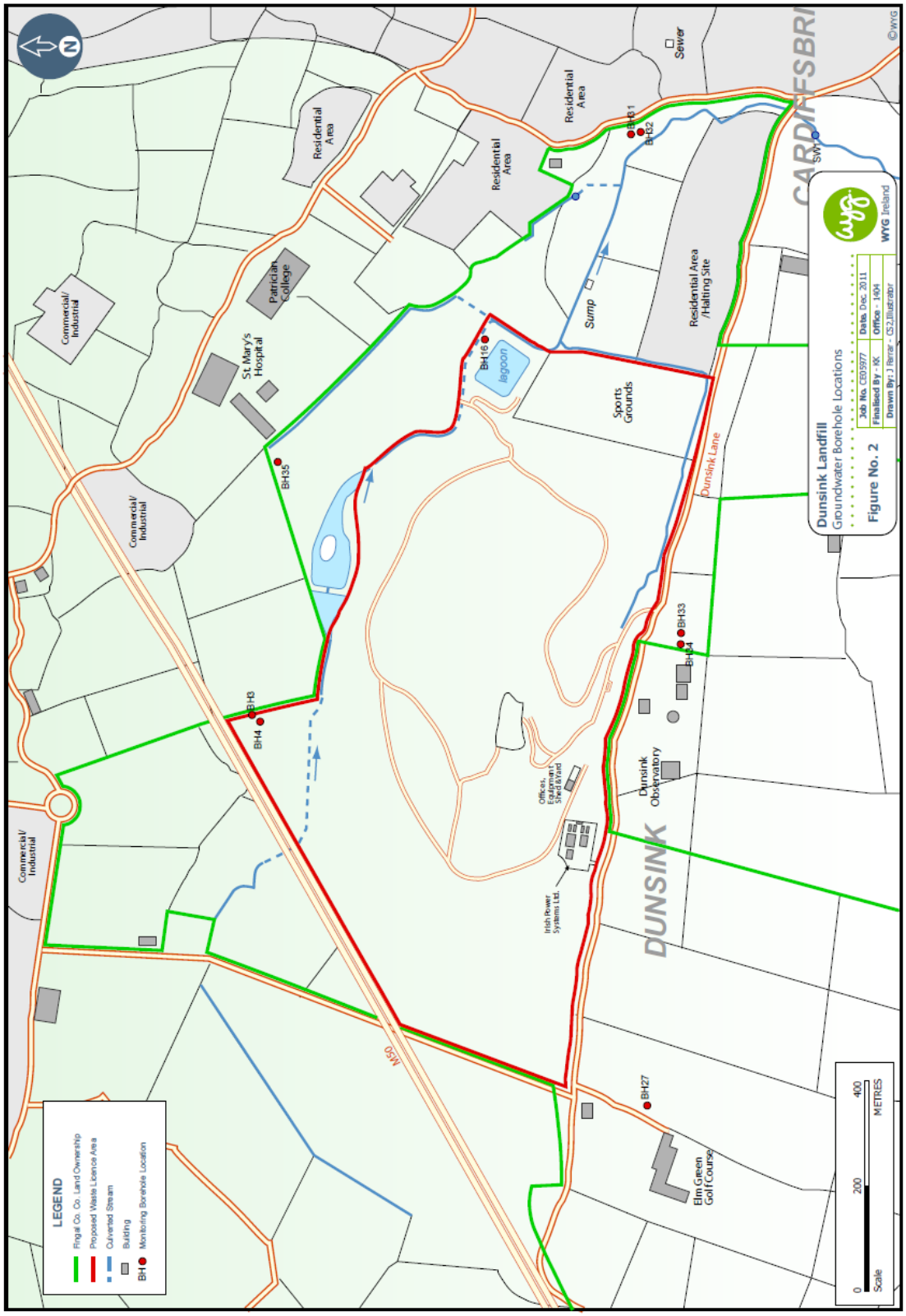

Figure 2 Groundwater Monitoring Locations

Table 2: Groundwater Sampling Programme 2012

Groundwater Borehole Monitoring Location	Q1 Jan-March	Q2 April-June	Q3 July-September	Q4 October - December
BH3	Sampled	Sampled	Sampled	Sampled
BH4	Sampled	Sampled	Sampled	Sampled
BH16	Sampled	Sampled	Sampled	Sampled
BH18_R	Decommissioned			
BH27	Sampled	Sampled	Sampled	Sampled
BH28	Not Installed			
BH29	Decommissioned 14th March 2005			
BH31	Sampled	Sampled	Sampled	Sampled
BH32	Sampled	Sampled	Sampled	Sampled
BH33	Sampled	Sampled	Sampled	Sampled
BH34	Sampled	Not sampled	Sampled	
BH34N			Sampled	Sampled
BH35	Sampled	Sampled	Sampled	Sampled

3.1.1 Methodology

Refer to Schedule D.5 of W0127-01.

3.1.2 Groundwater Monitoring Quality - Findings (See Appendix I)

Q1 January - March 2012 – Sampling dated 15th February 2012

Results from groundwater sampling during the 1st Quarter of 2012 indicated good groundwater quality at all monitoring boreholes BH3, BH4, BH16, BH27, BH31, BH32, BH33 & BH34. All parameters were below control and trigger levels or other relevant standards at all of the monitored borehole locations.

Q2 April - June 2012- Sampling dated 17th May 2012

Results from groundwater sampling during the 2nd Quarter of 2012 indicated generally good groundwater quality. The majority of locations recorded good quality groundwater with most

parameters measured below control and trigger levels or other relevant standards at the monitored borehole locations.

Very slightly elevated conductivity was recorded at BH3 and BH16. Slightly elevated pH values were recorded at BH32. The elevations recorded in all cases were only marginally above the relevant control and trigger value and no threshold under SI 9 of 2010 was exceeded at any groundwater monitoring location.

Q3 July – September 2012- Sampling dated 15th August 2012

Results from annual groundwater sampling carried out during the 3rd Quarter of 2012 indicated generally moderate or good groundwater quality. There were a few exceptions as follows: (i) The TOC results in many of the boreholes exceeded their control and trigger values though all TOC levels were less than 9 mg/l and not considered unusually high; (ii) Levels of manganese exceeded the threshold and/or control and/or trigger values at many of the boreholes. Elevated levels of manganese at the levels reported are not unusual in groundwaters from this type of geological environment and can be subject to some variation in levels at the same sampling station over time; (iii) There were slight exceedances of sodium at BH3 above the control value and BH4 above the control and trigger values and fluoride at BH33 above the control and trigger values. The fluoride level of 1.5 mg/l at BH35 was higher than the threshold level of 1mgl (no control or trigger values defined for this borehole).

It is noted that the laboratory detection limit for iron at 0.02 mg/l is higher than the control and/or trigger value at some boreholes though significantly lower than the SI 9 of 2010 threshold level.

All other parameters recorded levels below the threshold, control and trigger values. BH3, BH4, BH31, BH32, BH33 and BH34N were analysed for VOCs and Semi-VOCs and all results were recorded at less than the laboratory detection limits. The overall results indicate no great change in groundwater quality at the site since the 2011 annual sampling round.

Q4 October - December 2012- Sampling dated 23rd November 2012

Results from groundwater sampling during the 4th Quarter of 2012 indicated generally good groundwater quality. The majority of locations recorded good quality groundwater with most parameters measured below control and trigger levels or other relevant standards at the monitored borehole locations.

There was a high level of TOC (69 mg/l) recorded at BH16 and slightly elevated levels of TOC at most of the other monitoring boreholes. While the majority of the TOC levels were

generally in excess of the control and trigger values for the individual boreholes the levels recorded were not particularly high and generally less than 12 mg/l. The high level at BH16 was unusual and the well was resampled on 16/01/2013 and returned a TOC level of <2 mg/l.

3.1.3 Groundwater Levels

Groundwater levels were recorded from each borehole during each quarter and the results are displayed in Table 3.

Table 3: Groundwater borehole water levels in metres below ground level (mbgl)

Groundwater Borehole Monitoring Location	Q1 2012 (mbgl)	Q2 2012 (mbgl)	Q3 2012 (mbgl)	Q4 2012 (mbgl)
BH3	3.41	2.95	3.11	2.89
BH4 Shallow	2.72	2.75	2.68	2.61
BH16*	0.0	0.0	0.0	0.0
BH27	2.0	2.0	2.78	1.65
BH31 Shallow	3.58	3.67	3.9	3.48
BH32	0.21	0.01	0.81	0.78
BH33	2.9	2.46	3.4	2.1
BH34 Shallow	0.44	Damaged	0.83	N/A
BH34N Shallow	N/A	N/A	0.9	0.85
BH35	2.08	1.94	2.05	2.01

*BH16 is artesian

A hydrogeological Assessment of the facility was forwarded to the Agency in November 2004 (FCC-127-1-2004-065). It determined a regional up gradient / down gradient trending of groundwater from West-North-West to East-South-East beneath the landfill and surrounds. This pattern is generally consistent with the regional drainage pattern.

Bedrock Groundwater Quality

Results during 2012 indicated generally moderate or good groundwater quality in bedrock monitoring wells over the course of the year.

During Q2, very slightly elevated conductivity was recorded at BH3 and BH16 and slightly elevated pH values were recorded at BH32. The elevations recorded in all cases were only

marginally above the relevant control and trigger value and no threshold under SI 9 of 2010 was exceeded at any groundwater monitoring location.

There were slight elevations in TOC at all boreholes, sodium and chloride at BH3 and fluoride at BH33 and BH35 during Q3.

During Q4, there was a high level of TOC (69 mg/l) recorded at BH16 and slightly elevated levels of TOC at most of the other monitoring boreholes. While the majority of the TOC levels were generally in excess of the control and trigger values for the individual boreholes the levels recorded were not particularly high and generally less than 12 mg/l. The high level at BH16 was unusual and the well was resampled on 16/01/2013 and returned a TOC level of <2 mg/l.

Overburden Groundwater Quality

Shallow groundwater at the site was of moderate to good quality during 2012. However, there were slightly elevated levels of TOC at BH34 and BH34N and sodium at BH4 during Q3.

There were slightly elevated levels of TOC also recorded at BH4 and BH34N during Q4.

While the TOC levels recorded sometimes exceeded the control and trigger levels during Q3 and Q4 they were not significantly high at less than 12 mg/l.

Conclusion & Annual Assessment

The annual assessment of groundwater quality suggests there has been a continued slight improvement in groundwater quality at Dunsink Landfill in 2012 compared to earlier years. There were elevated levels of manganese and sometimes iron at many of the boreholes from Q2 onwards. However, elevated levels of iron and manganese are not uncommon naturally in Limestone waters and at the levels reported were not of particular concern.

3.2 SURFACE WATER

Schedule D.1 of the waste licence requires the monitoring of surface water at six locations (SW1, SW2, SW4, SW7, SW9 & SW10). Biological sampling was required at three locations (KS1, KS2, KS3); biological samples were collected at an additional three locations in 2012 (KS3a, KS4 and KS6) (See Table 4 and Figure 3). A Biological Sampling Assessment was undertaken on 29th August 2012.

SW11 was incorporated as an additional sampling location under instruction from *The Agency* following Q1 Monitoring Report 2004.

Surface water sampling points were established at the discharge from the wheelwash to the open channel WWSW1 and from the open channel to the Scribblestown Stream WWSW2.

SW1 is located downstream of the facility and sampling at this point monitors the effect of the facility on water quality. SW1 is located some distance downstream of the facility and a breakers yard lies adjacent to the stream and illegal waste tipping occurs between the facility and SW1. A case was put to *The Agency* to move SW1 further upstream to avoid these potential sources of surface water contamination and provide a truer picture of the effect of the facility on surface water quality. During the annual audit of the licence *The Agency* agreed and from 15th August 2005 a new downstream monitoring point, SW17, was used instead of SW1.

SW4 was replaced on 27/2/2006 by SW18 as the upstream sampling point as agreed with *The Agency* (127-1/AK11EM).

In 2010 two additional sampling points were added for the biological monitoring sampling, KS3a and KS6 and in 2011 an additional sampling point, KS4, was included, all of which are presented in Tables 4 & 5 and Figure 3.

In October 2012 it was agreed by the Agency to include SW21 located on the Scribblestown stream upstream of the landfill (on the opposite side of the M50) in the monitoring programme.

Table 4: Surface Water Monitoring Locations

Surface Water Monitoring Location	Eastings	Northings
SW1	311800	238460
SW2	311380	238980
SW4	310480	239365
SW7	311120	239220
SW9	310885	238795
SW10	311350	239100
SW11*	311360	238915
SW12**	310424	239410
SW13**	310829	239356
SW14**	311173	239277
SW15**	311417	239069
SW16**	311410	238926
SW17***	311687	238826
SW18****	310464	239394
SW21	310334	239455
KS1*****	310781	239373
KS2*****	311145	239242
KS3*****	311739	238812
KS3a*****	311600	238840
KS4*****	311415	239052
KS6*****	311590	238994
WWSW1******	311616	238921
WWSW2******	311644	238835

* Additional sampling location for monitoring programme.

** Enhanced monitoring programme undertaken 30th July 2004.

*** New downstream sampling point agreed during EPA audit August 2005.

**** New upstream sampling point agreed with *The Agency*.

***** Biological Sampling Programme.

****** Sampling points at discharge from wheelwash to open channel and from open channel to Scribblestown Stream. Only sampled when clay is imported onto the Landfill.

See Table 5 for sampling programme completed in 2012.

3.2.1 Methodology

Refer to Schedule D.5 of waste licence 127-1

3.2.2 Surface Water Monitoring Quality - Findings (See Appendix II)

Surface water quality was monitored in the drainage network within the landfill and its immediate environs throughout 2012. All the surface water sampling locations stipulated in the waste licence were sampled throughout 2012 (Table 5). The results of the biological sampling programme are discussed later in the report.

The water quality results have been compared to SI 293 of 1988 European Communities (Quality of Salmonid Waters) Regulations 1988 (Appendix II).

Table 5: Surface Water Monitoring Programme 2012

Surface Water Monitoring Location	Q1	Q2	Q3	Q4	Weekly Visual*	Annual
SW2	Y	Y	Y	Y	Y	Y
SW4	N	N	N	N	N	N
SW7	Y	Y	Y	Y	Y	Y
SW9	Y	Y	Y	Y	Y	Y
SW10	Y	Y	Y	Y	Y	Y
SW11	Y	Y	Y	Y	Y	Y
SW12	N	N	N	N	N	N
SW13	N	N	N	N	N	N
SW14	N	N	N	N	N	N
SW15	N	N	N	N	N	N
SW16	N	N	N	N	N	N
SW17	Y	Y	Y	Y	Y	Y
SW18	Y	Y	Y	Y	Y	Y
SW19	N	N	N	N	Y	N
SW21	N	N	N	Y	Y	N
WWSW1	N	N	N	N	Y	N
WWSW2	Y	Y	Y	Y	Y	Y
KS1	N	N	Y	N	N	N
KS2	N	N	Y	N	N	N
KS3	N	N	Y	N	N	N
KS3a	N	N	Y	N	N	N
KS4	N	N	Y	N	N	N
KS6	N	N	Y	N	N	N

* Weekly up until the end of October 2012, Monthly thereafter.

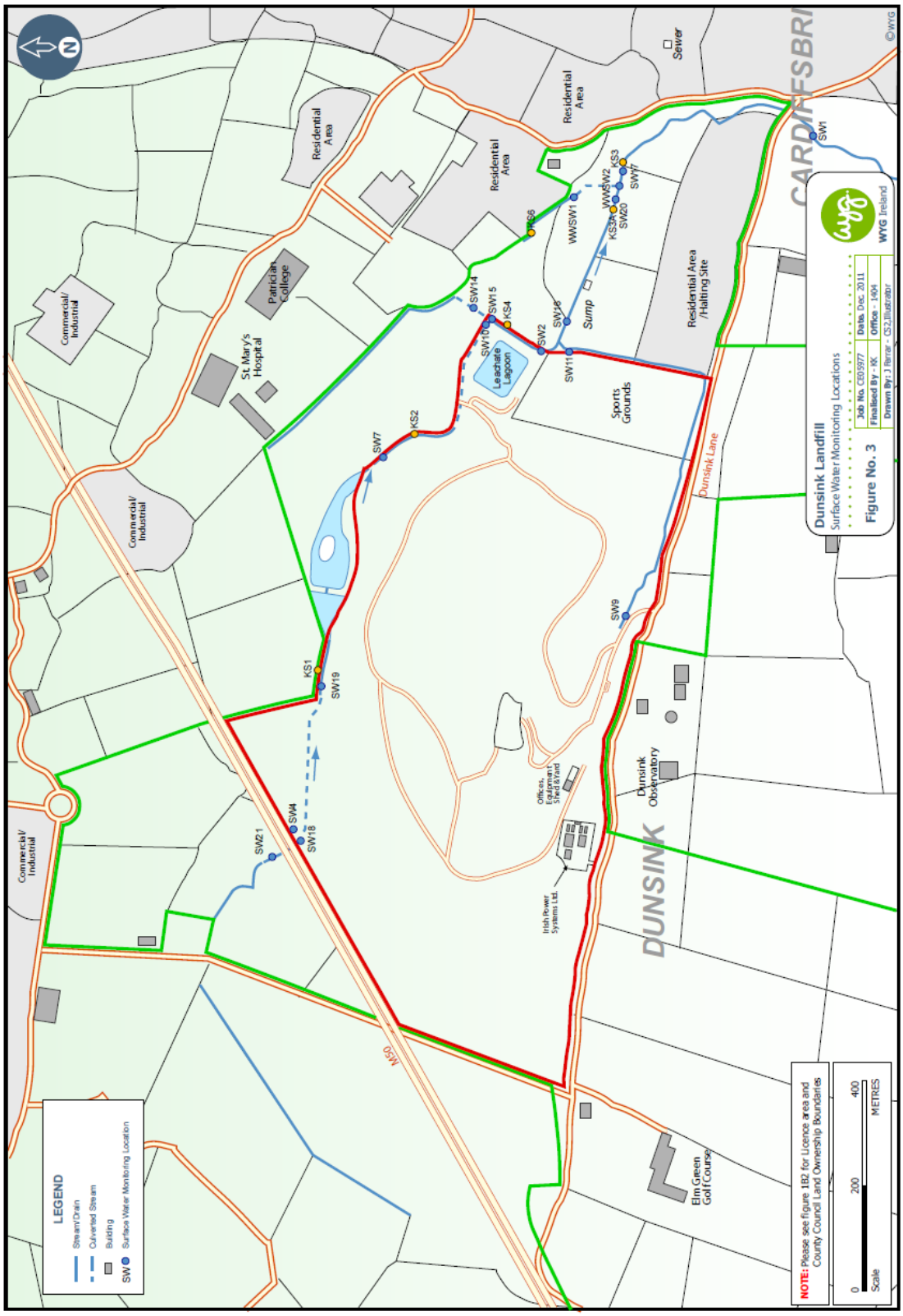

Figure 3 Surface Water Monitoring Locations

The Environmental Protection Agency's document "Parameters of Water Quality – Interpretation and Standards" details concentrations of total ammonia NH4 in fresh water which contain an unionised ammonia concentration of 0.02mg/l at their given pH and temperature. Unionised ammonia is the component of total ammonia which at "the value of 0.02 mg/l has a long term toxic effect level for fish both salmonid and cyprinid. Lethal levels are about ten times greater".

Using this data, concentrations of ammoniacal nitrogen determined during sampling in 2012 indicated that the concentrations of unionized ammonia at the following stations were above the 0.02 mg/l level:

- Q1 – SW18
- Q2 – SW18 and SW21
- Q3 – SW21
- Q4 – SW21

All other monitoring stations were below the 0.02 mg/l level for all four quarters.

Q1 January - March 2012 – Sampling dated 15th February 2012

Surface water results indicated moderate water quality at most locations during the Q1 2012 quarterly sampling round. Slightly elevated levels of conductivity, BOD and ammoniacal nitrogen were encountered at SW18 during the quarterly monitoring round. Slightly elevated levels of conductivity and total suspended solids were also recorded at several locations. Additional weekly sampling completed at SW18, SW21 and SW17 for ammoniacal nitrogen indicated that there is an upstream source of contamination impacting water quality at SW18 though the concentration is being attenuated before it reaches SW17.

Q2 April - June 2012 Sampling dated 17th May 2012

Surface water results during the Q2 2012 quarterly sampling round indicated good water quality at most locations. Slightly elevated levels of conductivity, BOD and dissolved oxygen were recorded at SW9. Slightly elevated conductivity was recorded at SW11 and SW18. Elevated ammoniacal nitrogen was recorded at SW18 and SW21.

Additional weekly sampling completed at SW18, SW21 and SW17 for ammoniacal nitrogen indicated that the upstream source of contamination impacting water quality at SW18

continues to impact water quality on the Scribblestown though the concentration is being attenuated before it reaches SW17.

Q3 July – September 2012- Sampling dated 15th August 2012

Surface water results during the Q3 2012 quarterly sampling round indicated moderate or good water quality at most locations. However, elevated levels of ammoniacal nitrogen were recorded at SW18, SW19 and SW21 and slightly elevated levels at SW2, SW17 and WWSW2. There was also an elevated level of BOD (11 mg/l) at SW19 and slightly elevated levels of potassium at SW9 and SW11 and sulphate at all monitoring stations (apart from SW18) above normal background levels.

The elevated sulphate levels were present in the Scribblestown Stream at SW21 (71.58 mg/l) upstream of the site, varied somewhat across the site (higher at some locations and lower at others) and had reduced to 58.5 mg/l at SW17 downstream of the site.

Additional weekly sampling completed at SW18, SW21 and SW17 for ammoniacal nitrogen indicated that the upstream source of contamination impacting water quality at SW21 and SW18 continues to impact water quality on the Scribblestown though the concentration is being attenuated before it reaches SW17.

Q4 October - December 2012- Sampling dated 12th December 2012

Surface water results during the Q4 2012 quarterly sampling round indicated moderate water quality at most sampling locations. However, elevated levels of ammoniacal nitrogen were recorded at SW21 and SW18 and slightly elevated levels at SW7, SW10, SW9 and SW17. There were elevated levels of conductivity at SW21, SW7, SW10, SW11, SW2 and SW17 and low levels of dissolved oxygen at SW18 and SW11.

Additional weekly sampling completed at SW18, SW21 and SW17 for ammoniacal nitrogen indicates that the upstream source of contamination impacting water quality at SW21 and SW18 continues to impact water quality on the Scribblestown stream though the concentration is being attenuated before it reaches SW17.

Weekly and Monthly sampling for Ammonia

Due to the regularly elevated levels of ammoniacal nitrogen recorded at SW21 and SW18, weekly samples were taken at SW21, SW18 and SW17 and sent for analysis during Q1 to Q3, October 2012 and monthly during November and December 2012. Results indicated elevated or high levels at SW21 throughout the year. The results from SW18 were also elevated or high for most of the year though lower than those at SW21. The results from SW17 indicated

normal levels of ammoniacal nitrogen with one or two slight elevations only. Figure 4 below shows ammoniacal nitrogen levels at SW21, SW18 and SW17 during 2012 (results in Table 6). Investigations into the source of the ammoniacal nitrogen are on-going and initial observations suggest the source of the ammoniacal nitrogen is upstream of the landfill.

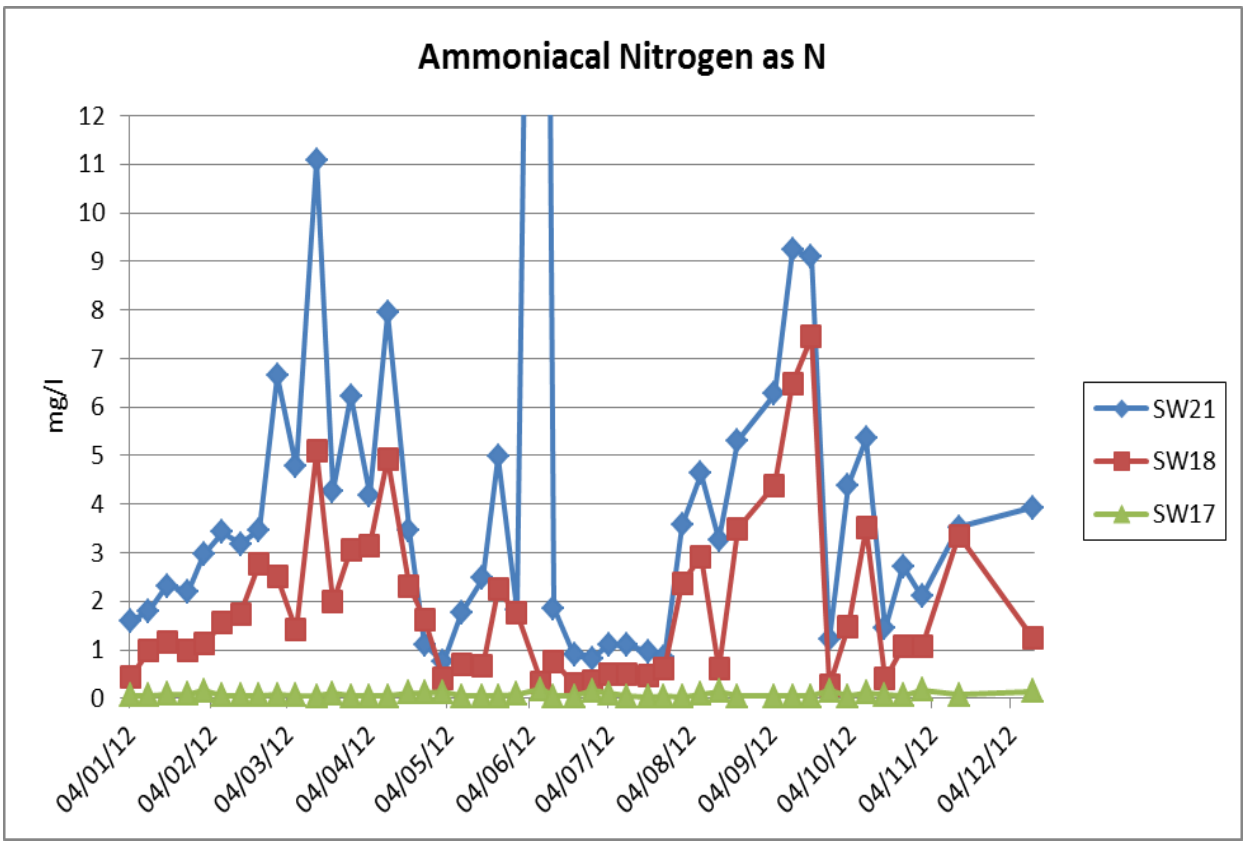

Figure 4: Ammoniacal Nitrogen Levels at SW21, SW18 & SW17 (2012)

Weekly and Monthly sampling for Conductivity

Weekly Electrical Conductivity measurements at SW21, SW18 and SW17 for 2012 are shown on Figure 5 below (Results presented in Table 7). The results indicated elevated conductivity levels (> 1,000 µS/cm) at SW18 and SW17 during January to March and again in December 2012. There were also a few spikes in conductivity levels at SW21 for the same periods. There has been a trend over recent years for elevated conductivity levels at these monitoring stations during the Winter months. This may be related to the salting of the M50 during these months or there may be other localised seasonal factors. Results from mid Spring through Autumn were generally less than 1,000 µS/cm.

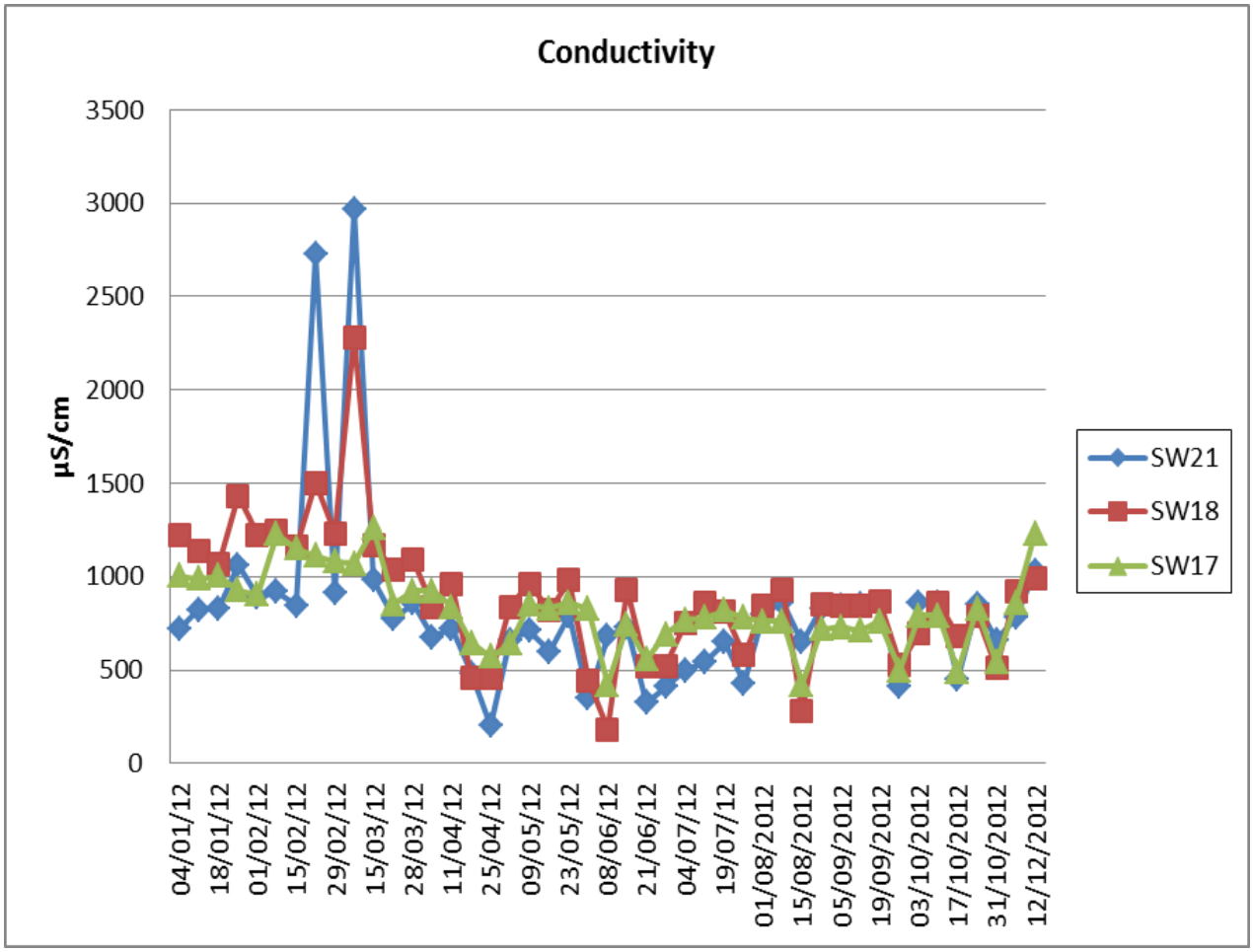

Figure 5: Conductivity measurements at SW21, SW18 & SW17 (2012)

Weekly Visual Inspections

Weekly visual inspections were carried out at all Surface Water Monitoring stations during Q1 to Q3, October 2012 and monthly during November and December 2012. The visual inspections included sampling of pH, temperature and conductivity as well as logging a

description of the waters, colour, odour, cloudiness, the substrate, weed growth and algae. Conductivity results are discussed above. All temperature readings and the vast majority of the pH measurements were within normal ranges for the water type and time of year.

Grey water, a grey deposit on the substrate and strong organic odours were noted at SW21 particularly during the second half of the year. Grey water and organic odours were recorded at SW18 and occasionally grey tinted water was noted at SW19 for the same period.

Heavy weed growth was recorded in the streams at SW2, WWSW1 throughout the year and at SW17 during the Spring and Summer months.
An oil sheen was noted on the surface of the southern tributary to the Scribblestown stream upstream of SW9 on 26/09/2012. This occurred after heavy rains and was considered to be residue oils from a historical spill in the area and relatively small in extent. Oil booms were placed across the stream and oil absorbent mats in the stream to mitigate the contamination. Water samples were collected from SW9 and SW11 (further downstream) on two occasions and analysed for banded EPH. Both sets of results returned all levels below the laboratory detection limits. The extent of oil film on the water surface was observed to reduce over the following three months.

On each occasion when an incident was recorded, an incident report was issued to the EPA and ERFB.

Monthly Wheelwash Sampling

Monthly sampling ceased in November 2007 as it was agreed with *the Agency* that future sampling of WWSW1 and WWSW2 will occur on a needs be basis.

Conclusion & Annual Assessment

The 2012 annual assessment suggests relatively similar water quality at Dunsink Landfill compared to 2011. However, there was a general deterioration in water quality at SW21 and SW18 evidenced by elevated or high levels of ammonia, grey deposits on the substrate, grey tinted water and strong organic odours. This was caused by contamination upstream of the landfill. The ammonia results from SW17, downstream of the site indicated normal levels of ammonia indicating that the ammonia was attenuated as it passed by the site.

There were also elevated levels of conductivity at many of the sampling stations on some occasions particularly during the Winter months.

In general the surface water sampling indicated moderate water quality over the 4 quarters of the year. New leachate pumping infrastructure (pumps, sump and leachate valve configuration) was commissioned in June 2005. Leachate interceptor drains are established to the West and South of the Lagoon, to intercept leachate seepages from the landfill. It is believed that these initiatives have been responsible for the general improvement in water quality at the facility.

3.3 LEACHATE

Schedule D of the waste licence requires the monitoring of leachate at the station "north-east lagoon", Table 8. A monitoring station which facilitates the obtaining of representative grab and / or continuous samples in accordance with Condition 8.4 is provided at the sump.

Table 8: Leachate Monitoring Locations 2012

Leachate Monitoring Location	Eastings	Northings
Northeast Lagoon	311323	239031
Sump	311417	238895

Table D.5.1 of Schedule D of the waste licence sets down the parameters and frequency for leachate monitoring. Table 9 below outlines the sampling programme for leachate undertaken in 2012.

Table 9: Leachate Monitoring Programme 2012

Leachate Monitoring Location	Q1	Q2	Q3	Q4	Annual
North East Lagoon	Sampled	Sampled	Sampled	Sampled	Sampled (Q3)
Sump	Sampled	Sampled	Sampled	Sampled	Sampled (Q3)

3.3.1 Leachate - Methodology

The monitoring of leachate was undertaken during 2012 using 2 methods – through a grab sample taken at 2 locations (sump and lagoon) at each quarter on one hand, and through continuous monitoring in the sump via a dissolved methane probe.

Refer to Schedule D.5 of waste licence 127-1 for the parameters and frequency of monitoring.

3.3.2 Leachate Monitoring – Results of Quarterly Sampling (See Appendix II)

Q1 January - March 2012 – Sampling dated 15th February 2012

Results from leachate sampling at the lagoon recorded pH of 8.42, conductivity of 1.434mS/cm and temperature of 12°C. Dissolved methane was recorded at less than the laboratory detection limit (<0.001 mg/l).

Results from leachate sampling at the leachate sump recorded pH of 8.22, conductivity of 2.626mS/cm and temperature of 12 °C. Dissolved methane was recorded at 0.497 mg/l. Table C.6 of the waste licence states that Emission Limits for Dissolved Methane in Leachate Being Discharged to Sewer as 0.14mg/l. The results indicated that emission limit values for dissolved methane were exceeded for leachate in the leachate sump.

Q2 April - June 2012- Sampling dated 17th May 2012

Results from leachate sampling at the lagoon recorded pH of 8.57, conductivity of 1.654mS/cm and temperature of 15.6°C. A dissolved methane concentration of 0.005 mg/l was recorded.

Results from leachate sampling at the leachate sump recorded pH of 7.94, conductivity of 3.479 mS/cm and temperature of 12 °C. Dissolved methane was recorded at 1.557 mg/l. The results indicated that emission limit values for dissolved methane (0.14 mg/l) were exceeded for leachate in the leachate sump.

Q3 July – September 2012- Sampling dated 15th August 2012

Results from leachate sampling at the lagoon recorded pH of 8.61, conductivity of 2.373 mS/cm and temperature of 18.2°C. A dissolved methane concentration of 0.031 mg/l was recorded.

Results from leachate sampling at the leachate sump recorded pH of 8.38, conductivity of 3.746 mS/cm and temperature of 16.8 °C. Dissolved methane was recorded at 2.754 mg/l.

Table C.6 of the waste licence states that Emission Limits for Dissolved Methane in Leachate Being Discharged to Sewer as 0.14mg/l. The results indicated that emission limit values for dissolved methane were exceeded for leachate in the leachate sump.

Q4 October - December 2012- Sampling dated 12th December 2012

Results from leachate sampling at the lagoon recorded pH of 8.31, conductivity of 1.25 mS/cm and temperature of 4.7°C. A dissolved methane concentration of <0.001 mg/l and ammonia of 0.31 mg/l were recorded.

Results from leachate sampling at the leachate sump recorded pH of 6.92, conductivity of 3.03 mS/cm and temperature of 11.9 °C. Dissolved methane was recorded at 2.066 mg/l and ammonia of 131.66 mg/l. The results indicated that emission limit values for dissolved methane (0.14 mg/l) were exceeded for leachate in the leachate sump.

Leachate – Discussion.

The results from quarterly visual inspections and annual monitoring of metals for the leachate lagoon and sump indicated concentrations typical of leachate quality. The lagoon is naturally lower than the sump for many parameters due to the diluting effect of rainwater and passive aeration associated with the fall of leachate into the lagoon.

Weekly monitoring of Methane, Carbon dioxide and Oxygen is being carried out at the headspace of the sump and the point of discharge to public sewer in Finglas (See Figure 1). The results are being sent to The Agency through weekly notifications and are also being compiled for Dublin City Council. Dublin City Council may require further mitigation measures following a review of the results of these monitoring rounds.

3.3.3 Continuous monitoring of Dissolved Methane in Leachate

Continuous monitoring of dissolved methane at the sump commenced during Q1 2006. Table C.6 of the waste licence states that Emission Limits for Dissolved Methane in Leachate Being Discharged to Sewer as 0.14mg/l. Continuous monitoring of dissolved Methane has been carried out from 3rd October 2006 to present. Reporting of incidents under this system is being undertaken through the quarterly environmental reports as the data has emerged and is analysed.

3.3.4 Results from Continuous monitoring of Dissolved Methane in Leachate

Resulting from the annual audit of October 2010 (Audit W0127-01AR10EM), a new methane probe was purchased and installed on Wednesday 5th January 2011. The new probe had a range of 0.016 to 1mg/L of dissolved methane. During 2011 most values recorded by the new

probe were at the maximum range of the probe – which would indicate the value measured is in excess of the range the probe can read. These results indicate that the ELV is exceeded almost continuously at high levels. The accuracy of the probe readings was questioned, partly due to the discrepancy between probe readings and the results of the quarterly spot sampling.

Expert advice was sought from ENVIROS, and an onsite test was carried out using a technique developed by ENVIROS that allows determination of on the spot levels of dissolved methane in the leachate. The on the spot levels recorded on the 14/11/2011 were at an average of 3.357mg/L. As a result of these elevated readings a new probe was purchased and installed in January 2012. The new probe measures dissolved methane concentrations ranging from 0.016mg/L to 5mg/L.

Q1 January- March 2012

48,245m^3 of leachate was discharged to public sewer during Q1 2012.

a) No 24 hour mean value shall exceed the ELV;

100% of 24 hour mean values exceeded the ELV of 0.14mg/L

b) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value.

100% of 30 minute mean values exceeded 1.2 times the ELV (0.168mg/L)

No 30-minute mean value shall exceed twice the emission limit value.

100% of 30 minute mean values exceeded 2 times the ELV (0.28mg/L).

Dissolved methane concentrations as measured by the new onsite probe confirm dissolved methane levels in leachate discharged are in excess of the ELV.

Q2 April - June 2012

60,709m^3 of leachate was discharged to public sewer during Q2 2012.

The values of the new probe installed in January 2012 were validated by a one off sampling carried out by ENVIROS on 20/06/2012, where ENVIROS method indicated a 3.32mg/L concentration of dissolved methane in the leachate (average of 4 samples) when the probe gave a 3.1mg/L reading.

a) No 24 hour mean value shall exceed the ELV;

95.6% of 24 hour mean values exceeded the ELV of 0.14mg/L

b) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value.

95.3% of 30 minute mean values exceeded 1.2 times the ELV (0.168mg/L)

No 30-minute mean value shall exceed twice the emission limit value.

93.8% of 30 minute mean values exceeded 2 times the ELV (0.28mg/L).

The dissolved methane concentration measured by the probe is generally well in excess of the ELV. An interim report (ref FCC-127-1-2012-06) was issued to the EPA detailing current reading and the proposed steps to find a way to achieve compliance with the ELV of 0.14mg/L.

Q3 July- September 2012

52,372m^3 of leachate was discharged to public sewer during Q3 2012.

a) No 24 hour mean value shall exceed the ELV;

100% of 24 hour mean values exceeded the ELV of 0.14mg/L

b) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value.

99.5% of 30 minute mean values exceeded 1.2 times the ELV (0.168mg/L)

No 30-minute mean value shall exceed twice the emission limit value.

99.7% of 30 minute mean values exceeded 2 times the ELV (0.28mg/L).

The dissolved methane concentration measured by the probe is well in excess of the ELV. Trials were conducted in July and August 2012 to assess the effect of pumping scenario on dissolved methane concentration. A report of these findings and proposed steps to get dissolved methane in compliance with the ELV was issued to the Agency in October 2012 (FCC-127-1-2012-10).

Q4 October- December 2012

62,157m^3 of leachate was discharged to public sewer during Q4 2012.

a) No 24 hour mean value shall exceed the ELV;

96.7% of 24 hour mean values exceeded the ELV of 0.14mg/L (3 no. 24 hour mean values were under the ELV)

b) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value.

93.8% of 30 minute mean values exceeded 1.2 times the ELV (0.168mg/L)

No 30-minute mean value shall exceed twice the emission limit value.

90.9% of 30 minute mean values exceeded 2 times the ELV (0.28mg/L).

The dissolved methane concentration measured by the probe was generally well in excess of the ELV.

Fingal County Council undertook various exercises in 2012 to try and decrease the dissolved methane levels in the leachate pumped to sewer. These are continuing in 2013. Progress reports on the matter are issued to the Agency as developments occur.

3.3.5 Discussion of Results from Continuous Sampling of Dissolved Methane

The results indicate that the ELV is exceeded almost continuously at high levels.

Fingal County Council undertook various exercises in 2012 to try and decrease the dissolved methane levels in the leachate pumped to sewer. These are continuing in 2013. Progress reports on the matter are issued to the Agency as developments occur.

Weekly monitoring of Methane, Carbon dioxide and Oxygen is being carried out at the headspace of the sump and the point of discharge to public sewer in Finglas. The results are being sent to The Agency through weekly notifications and are also being compiled for Dublin City Council.

3.4 NOISE

No noise survey was undertaken at Dunsink Landfill in 2012. This was addressed in Licence Audit Report for 2008 from the Agency W1027-01/08/AR08EM, observation No.5, on Environmental Monitoring.

3.5 DUST

No dust monitoring surveys were carried out at Dunsink Landfill in 2012. This was addressed in Licence Audit Report for 2008 from the Agency W1027-01/08/AR08EM, observation No.5, on Environmental Monitoring.

3.6 PM_{10} MONITORING

The Agency in correspondence referenced 127-1/GEN01EM stated that "The Agency, in accordance with Condition 8.2, does not require monitoring of PM_{10} as listed in Table D.3.1 of the waste licence unless otherwise instructed by the Agency."

3.7 BIOLOGICAL ASSESSMENT OF THE SCRIBBLESTOWN STREAM

A biological assessment of the Scribblestown Stream was undertaken at KS1, KS2, KS3, ks3a, KS4, KS5 and KS6 (Figure 3 / Tables 4 & 5) on 29th August 2012.

The kick sampling method follows that used by the EPA in its River Water Quality Q-value Monitoring programme (EPA 2006). It involved a two minute kick sample and one minute stone washing of riffle habitats at each sampling location. A 'D' shaped hand net (mesh size 0.5mm, 35cm diameter) was used to collect the samples. Specimens were collected and placed in a labelled plastic bottle with a 70% methylated spirits (IMS) preservative solution for later identification off-site. Specimens were identified to as low a taxonomic level as possible using standard reference keys.

Where kick sampling could not be employed due to soft river bed or excessive aquatic plants, a weed sweep methodology was employed. The weed sweep was undertaken for 2 minutes in the absence of samples from a kick sample and only 1 minute where a kick sample had been conducted.

EPA Q-Value

The EPA Q-value system is a biometric index. The water quality of a river or stream is determined primarily on the relative abundance of indicator groups of benthic (bottom dwelling) macroinvertebrates. The indicator groups have different sensitivities to organic pollutants (McGarrigle et al., 2002). Other parameters taken into account in determining the Q-value score include the channel substrate, macrophytes and the presence or absence of sewage fungus and filamentous algae. Physico-chemical parameters (pH, temperature,

conductivity and dissolved oxygen) are also measured. The Q index scoring system is as follows:

The EPA Q-Value Categories

Biotic Index	Quality Status	Quality Class
Q5, Q4-5, Q4	Unpolluted	Class A
Q3-4	Slightly polluted	Class B
Q3, Q2-3	Moderately polluted	Class C
Q2, Q1-2, Q1	Seriously Polluted	Class D

Small Stream Risk Score (SSRS)

The SSRS is a biological risk assessment system for detecting potential sources of pollution in 1st and 2nd order streams. It was developed by the Environmental Protection Agency (EPA) in association with Western River Basin District (WRBD 2005) as part of the Water Framework Directive (WFD) catchment management plans. It is intended to determine if a section of a stream is at risk of pollution and not meeting 'good status' water quality i.e. Q4 or Q5 under the Q-Value System. The SSRS methodology only considers certain indicator species to calculate a risk score. These are mayfly nymphs, stonefly nymphs, caddis fly larvae, Gastropods (snails and limpets), Oligochaetes (various worms), Diptera larvae (true fly larvae) and Asellus spp. (water hog louse). The number and relative abundance of each of the groups of taxa are recorded and used to determine the Risk Score for the sample. The score is compared to the risk grading as outlined below.

Risk Score:

- > 7.25 Probably not at Risk
- 6.5 – 7.25 Intermediate - May be at risk
- <6.5 Stream at Risk of failing to meet 'Good Status'

The Scribblestown Stream and associated tributaries are 1st and 2nd order streams and therefore SSRS is suitable for use in this particular investigation.

The results for the 2012 assessment are presented below along with the historical Q Biotic indices results for the Scribblestown stream and tributaries.

Site /Year	2005	2006	2007	Dec. 2008	Aug. 2009	Dec. 2009	Sept. 2010	Sept. 2011	Aug. 2012	Aug. 2012 SSRS Score
KS1	Q3	Q3	Q2-3	Q2-3	Q2-3	-	Q3	Q3*	Q3	0
KS2	Q3	-	-	Q3	Q2-3	Q3	Q3	Q3*	Q3	1.6
KS3	Q3	Q3	Q3	Q3	Q2-3	Q2-3	Q2-03	Q3*	Q3	3.2
KS3a	-	-	-	-	-	-	Q3	Q3*	Q3	1.6
KS4	-	-	-	-	-	Q3	-	Q3*	Q3	3.2
KS5	-	-	-	-	-	Q3	-	-	-	-
KS6	-	-	-	-	-	Q2	Q1-2	Q3*	Q2	4

- = Not sampled

* = Very low flow conditions

Not kick sampled - Weed Sweep

DISCUSSION

During the 2012 biological assessment of surface waters at Dunsink Landfill Site, it is considered that water levels were generally normal for the dimensions of the streams assessed. One of the notable declines was the reduction in macroinvertebrate species diversity and the limited numbers of sensitive taxa in Group A or B.

A large number of the monitoring locations did not permit conventional macroinvertebrate sampling techniques, i.e. kick sampling, due to very soft silty beds and/or dense vegetation. In the absence of highly oxygenated habitats such as riffles, sensitive to pollution, Group A and B taxa are unlikely to be encountered which will continually limit the maximum potential biological score during future monitoring rounds. When kick sampling cannot be undertaken this presents a limitation to the survey. Reduced macroinvertebrate diversity and individual

count can also be attributed to recent intense rainfall events which can have the capability to flush a small stream of some species. This should be considered as a limitation to this survey when comparing the results of this assessment to assessments conducted in previous years.

With the exception of sampling location KS2, the stream channels were completely overgrown with vegetation and had very soft stream beds. This limited the macroinvertebrate survey by having to adopt a weed sweeping methodology for the majority of the sampling locations. During historical assessments undertaken at the site, prior to 2011, it is understood that water was generally flowing in the stream channels and a kick sampling methodology was employed at all sampling locations.

When comparing the results of the 2012 assessment to previous assessments, one of the most significant differences is the reduction in species diversity and number of individuals observed. During the 2012 assessment, the number of different species of macroinvertebrates (diversity) at each sampling location was generally less than that observed in previous years. A similar trend was observed in the number of individuals counted in each sample. There is a high possibility that this decrease in species diversity and numbers could be attributed to the stress imposed on the aquatic environment within the streams by varying water levels and/or rates of discharge and physical habitat limitations as opposed to contamination loading from the waste mass. Despite the reported decline in macroinvertebrate species diversity and individual counts, the Q-value score is relatively consistent with scores calculated historically for each sampling location.

SSR Scores

When comparing the results of the 2011 assessment and the 2012 assessment, the risk category of each of the sampling locations remains 'at risk'. The 'at risk' category is to be expected at streams which, have been modified (including upstream), heavily vegetated, and devoid of a pool riffle habitat. This category is unlikely to change at the site due to the historical development at the site as opposed to current site practices or current chemical loading from the waste mass. Where stream channels are muddy and soft, heavily vegetated, and devoid of riffles, the potential for oxygenation of water is limited. Where dissolved oxygen concentrations are low, the habitat for sensitive taxa which will increase the SSRS score into the 'probably not at risk' category will not exist. Therefore, it is unlikely that an improvement to the SSRS score to this extent will be achieved in the short term.

Despite there being no change in the SSRS category, it should be noted that at KS2, KS3, and KS4, the SSR score calculated was identical to the score calculated during the 2011 assessment. A reduction in the score was calculated at all other monitoring locations.

CONCLUSION

Despite there being 'normal' water levels and low velocity in the streams at the sampling locations at the time of the 2012 assessment, the macroinvertebrate species diversity and individual counts were lower than what would typically be expected.

Due to the nature of 1st and 2nd order streams, discharge and velocity of the stream is considered to be variable and dependent upon local meteorological conditions. 1st and 2nd order streams have a tendency to be 'flashy' meaning during intense rainfall, discharge can increase greatly which can dislodge some macroinvertebrates from the benthic environment. During dry periods, where lower than normal volumes of water are present, it is expected that background chemical concentrations will be elevated due to the reduced potential of dilution. Although this scenario has been presented, it is not considered to be the primary limitation on biological scores at the site.

The primary limitation on biological scores is considered to be the dense vegetation and heavily silted beds which do not permit conventional kick sampling techniques. Some aquatic biologists would argue that a heavily silted bed is resultant from elevated suspended solids, and therefore the absence of sensitive taxa would be correct and the stream would be considered polluted.

3.8 LANDFILL GAS

3.8.1 Landfill Gas Monitoring – Methodology.

Refer to Schedule D.2. of waste licence 0127-01.

3.8.2 Landfill Gas Facility Monitoring

Since the 4th Quarter (Q4) of 2006 measurements of landfill gas were carried out at twenty four locations at the perimeter of the landfill (See Figure 6 and Table 10).

During November 2007 (Q4) in agreement with the *Agency*, weekly gas monitoring decreased to six monitoring locations (G35 to G40) and the leachate sump and sewer, with the monthly monitoring round still consisting of all accessible gas monitoring locations (24 locations). From September 2010 monitoring location G23 was also included in the weekly gas monitoring.

Gas monitoring station G41 was lost during site excavation work in September 2012 and a replacement borehole G41R was drilled adjacent to it on 5/12/2012.

At the end of October 2012 the Agency and FCC agreed to amend the monitoring programme from weekly to monthly with the following exceptions. The sewer at Finglas continues to be monitored weekly and in the event that monitoring at the landfill indicates any exceedances of methane above the trigger level, or unusually high levels of carbon dioxide relative to historical levels at the site, then monitoring should continue weekly until the gas levels subside or remedial action effected.

Table 10: Landfill Gas monitoring Locations and Programme 2012

Landfill Gas Monitoring Locations.	Monitoring Frequency Pre Nov. 2012	Monitoring Frequency Post Nov. 2012	Eastings	Northings
G3**	Monthly	Quarterly	311270	238670
G6**	Monthly	Quarterly	311180	239425
G7**	Monthly	Quarterly	311230	239375
G8**	Monthly	Quarterly	311300	239320
G9**	Monthly	Quarterly	311360	239260
G10**	Monthly	Quarterly	311410	239170
G12	Monthly	Quarterly	310040	238850
G13	Monthly	Quarterly	310560	238795
G18	Monthly	Quarterly	311150	238630
G21	Monthly	Quarterly	311380	238990
G23	Weekly	Quarterly	310325	239265
G35	Weekly	Monthly	311265	238740
G36	Weekly	Monthly	311210	238740
G37	Weekly	Monthly	311290	238875
G38	Weekly	Monthly	311245	238880
G39	Weekly	Monthly	311195	238835
G40	Weekly	Monthly	311520	239090
G41**/G41R	Monthly	Monthly	311580	239020
G42**	Monthly	Quarterly	311410	238805
G43**	Monthly	Quarterly	311524	239088
G44**	Monthly	Quarterly	311516	239100
IPS inlet	Weekly	Monthly	310515	238849
Leachate Sump	Weekly	Monthly	311417	238895
Finglas Manhole	Weekly	Weekly	311909	238733

** (Changed to monthly monitoring during November 2007)

Gas levels were monitored using a GFM 430 series landfill gas analyser. The boreholes were monitored for Methane (CH_4), Carbon dioxide (CO_2), Oxygen (O_2), Hydrogen Sulphide, temperature and atmospheric pressure.

Gas trigger levels at monitoring boreholes outside the waste body have been set at 1% for methane and 1.5% for Carbon dioxide in accordance with the waste licence.

The results of the gas monitoring are recorded in weekly landfill gas monitoring round sheets – these are available from the quarterly environmental monitoring reports.

Landfill Gas - Proximity of Buildings and Developments to the Site

There are a number of buildings and developments on site, which are identified in the risk analysis of the site from landfill gas, which have potential to expose receptors to risk from landfill gas (See Figure 6). These include the former Irish Power Systems (IPS) compound (now FCC) at the southern boundary to the site along Dunsink lane. The Equipment yard and shed (which will also house the site offices) is close to the southern boundary of the site, immediately east of the IPS compound.

There are a number of buildings and developments close to the site which have potential to expose receptors to risk from landfill gas. Cappagh Hospital is located to the north of the landfill boundary. Dunsoghly estate lies to the east of Cappagh Hospital and north east of the landfill boundary. A halting site is established along the south-east boundary of the landfill (Figure 6).

South of Dunsink Lane, which marks the southern boundary of the site, there are a number of developments. From west to east these include; Elm Green Golf Course, Dunsink Observatory and a series of unauthorised halting sites (Figures 2 & 6).

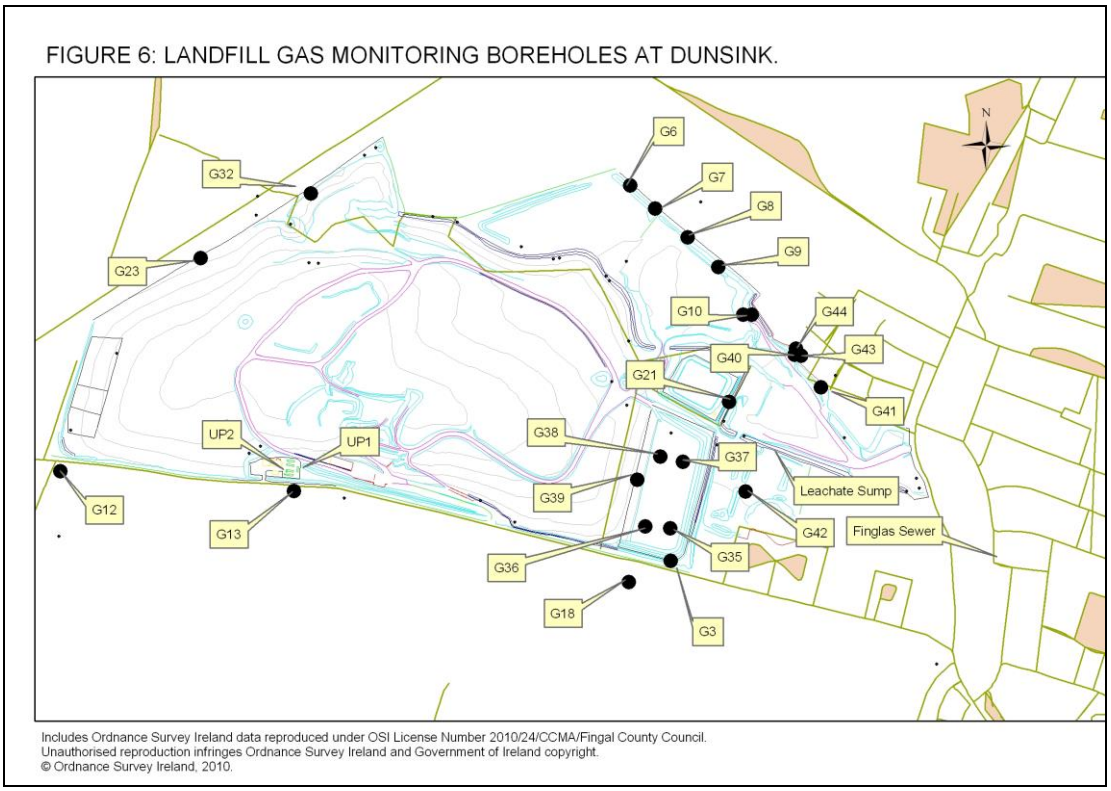

Figure 6: Landfill Gas Borehole Monitoring Locations

Locations of Trigger Level Exceedances

Q1 January to March 2012

During Quarter 1 2012, elevated levels of carbon dioxide were recorded above the trigger level at a number of the sportsfield boreholes including G36, G37, G38, G39 and at G40. Elevated levels of carbon dioxide were also occasionally recorded at G9, G10, G43 and G44. The highest level recorded was 16.1% v/v at G39 though most of the elevated levels were <5% v/v with a few measurements between 5% and 10% v/v.

An elevated level of methane was recorded above the trigger level at G37 on 4th January 2012 (3.6% v/v). No other significant concentrations of methane were recorded during the 1st Quarter of 2012.

Q2 April – June 2012

During Quarter 2 2012, elevated levels of carbon dioxide continued to be recorded at a number of the sportsfield boreholes including G35, G36, G37, G38, G39 and at G40. Elevated levels of carbon dioxide were also occasionally recorded at G6, G9, G10, G43 and G44. All levels were less than 10.2% v/v.

An elevated level of methane was recorded at G37 on 4th May 2012 (2.6% v/v). No other significant concentrations of methane were recorded during the 2nd Quarter of 2012.

Q3 July – September 2012

During Quarter 3 2012, elevated levels of carbon dioxide continued to be recorded at a number of the sportsfield boreholes including G35, G36, G37, G38, G39 and at G40. Elevated levels of carbon dioxide were also occasionally recorded at G3, G6, G9, G10, G23, G43 , G44 and the leachate sump. The highest level recorded was 18.6% v/v at G38.

There were no significantly elevated levels of methane recorded at any of the monitoring stations during this quarter.

Q4 October – December 2012

During Quarter 4 2012, elevated levels of carbon dioxide continued to be recorded above the trigger level at the sportsfield boreholes including G35, G36, G37, G38, G39, at G40 and the leachate sump. Elevated levels of carbon dioxide were also occasionally recorded at G6, G9, G10, G43 and G44. The highest level recorded was at G44 (12.9% v/v).

Elevated levels of methane were recorded above the trigger level at G37 on four occasions ranging from 1.2% to 3.3% v/v, at G41R on two occasions (1.8% and 3.8% v/v) and once at the leachate sump (1.1% v/v). No other significant concentrations of methane were recorded during the 4th Quarter of 2012.

Landfill Gas infrastructure

A venting trench was proposed and agreed by the Agency for the remediation of landfill gas migration on the "sports-ground". These works went to public tender and the venting trench was commissioned during Q2 2005.

A landfill gas spike monitoring report conducted in September 2004 suggested that the Scribblestown Stream may well be acting as an effective natural barrier/vent to landfill gas migration towards Cappagh Hospital and the Northern Boundary of the site and implies that these areas are not at risk.

The gas extraction and recovery facility continues to operate at the IPS compound. This includes for the pumping of gas from extraction boreholes on the landfill and the generation of electricity from gas turbines. The system also includes for a gas flare which operates when the gas engines are shut down for maintenance.

Landfill Gas Monitoring – Summary

Landfill gas monitoring undertaken at Dunsink landfill in 2012 indicated a slight reduction in the number and level of exceedances in trigger levels compared to previous years. However, there continues to be regular, though not continuous elevations of carbon dioxide at the sportsfield monitoring boreholes and occasional elevations in methane at G37 and the leachate sump. There were a few elevations in methane recorded at G41R (replacement borehole for G41) since it was installed in December 2012. Future monitoring will determine if this is an on-going or temporary issue at this location.

Exceedances in the weekly and monthly monitoring of gas at the landfill are reported to the EPA in incident reports as they occur.

3.8.3 Landfill Gas Utilisation Plant Monitoring Equipment and Sampling points

Weekly monitoring at the inlet and continuous monitoring at the outlet commenced during Q1 2006. It was agreed by the Agency that reporting of incidents under this system could be done through the quarterly and annual environmental reports.

Inlet to Landfill Gas Utilisation Plant

A gas sampling system to include chilling and filtration for the protection of the portable infrared analyser was installed. This facilitates weekly monitoring of methane, carbon dioxide and oxygen using a GFM 430 series landfill gas analyser, which is used for borehole monitoring. It also provides a sampling location for annual monitoring of Total Sulphur, Total Chlorine and Total Fluorine. The results from the weekly sampling at the inlet are reported in the weekly landfill gas monitoring round sheets. These sheets are available from the quarterly environmental monitoring reports.

Outlet from Landfill Gas Utilisation Plant

Carbon monoxide and nitrogen oxides are monitored continuously. Continuous monitors on the outlets of the two gas engines were installed. The analysers are proven to be effective on other landfill gas utilisation plants. An appropriate data management system has been installed and this provides for data logging and data storage.

Additionally, a gas sampling system to allow for annual monitoring of total VOCs as carbon, total non-methane VOCs and Particulates, Hydrochloric acid and Hydrogen fluoride, and, quarterly monitoring of nitrogen oxides has been installed.

Emission limit values for Landfill Gas Plant

The emission point reference numbers are proposed to be:

UP1 Utilisation Plant Input 1

UP2 Utilisation Plant Output Engine 1

UP3 Utilisation Plant Output Engine 2

The analysers are able to measure and report at a sufficient resolution to register the emission limit for Carbon monoxide (CO) (1400mg/m3).

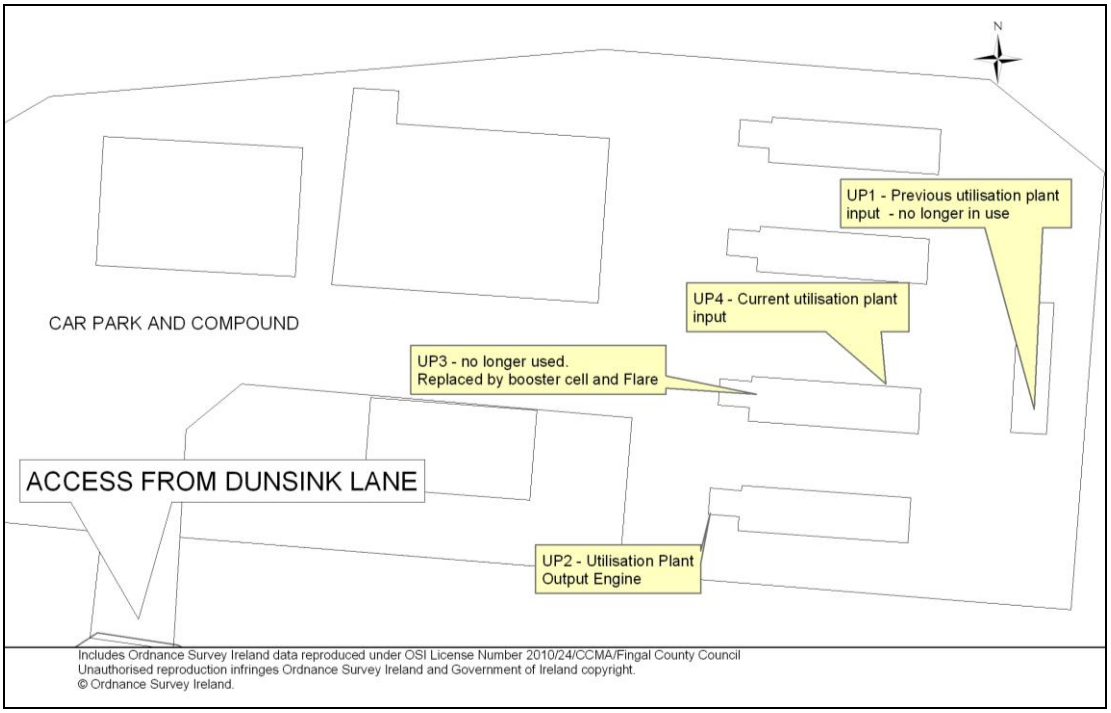

Figure 7: Dunsink Landfill Gas Utilisation Plant

3.8.4 Results from Continuous sampling of parameters at outlets from Landfill Gas Combustion Plant.

Continuous monitoring of outlet parameters at the Landfill Gas Combustion Plant was undertaken throughout 2012. The source of these emissions is the engine identified as UP2, Engine #2 was removed and UP3 is no longer used (see Figure 7 above).

Limit values as per Schedule C.5 of the governing waste licence 127-1 are outlined in the table below;

Table 11: Emission Limit Values for continuous monitoring parameters at outlets for utilisation plant

Parameter	Utilisation Plant Emission Limit Value
Nitrogen oxides (No_x)	500mg/m^3
CO	1400mg/m^3

Note 1: Dry gas referenced to 5% oxygen by volume for utilisation plants.

As per condition 1.6 b) of the waste licence 127-1, and Schedule C.5, specifying the Emission Limits Values (ELV) for Landfill Gas Plant (see Table 9 above) the following incidents occurred during 2012 at the IPS compound in Dunsink.

Condition 6.3.2 has been complied with in full as of 27-09-2006; "The concentration limits …..shall be based on gas volumes under standard conditions of:-

In the case of landfill gas combustion plant:
Temperature 273K, pressure 101.3kPa, dry gas; 5% oxygen".

Throughout 2012 reporting of continuous landfill gas monitoring was as per protocols specified in condition 6.3.3.1.

1st Quarter 2012

(a) No 24 hour mean value shall exceed the ELV;

2 No. 24 hour means exceeded 500 mg/m3 for Nitrogen Oxides and 8 No. 24 hour means exceeded 1400 mg/m3 for Carbon monoxide at engine number 1.

(b) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value.

729 No. 30 minute mean values or 16.5% of samples taken continuously over this quarter for Carbon monoxide exceeded 1.2 times the 1400mg/m3 ELV at engine number 1. 164 No. 30 minute mean values or 3.7% taken continuously over this quarter for Nitrogen Oxides exceeded 1.2 times the 500mg/m3 ELV at engine number 1.

(c) No 30-minute mean value shall exceed twice the emission limit value.

662 No. or 15% of 30 minute mean values taken continuously over this quarter for Carbon monoxide exceeded twice the 1400mg/m3 ELV at engine number 1. 75 No. or 1.7% of 30 minute mean values taken continuously over this quarter for Nitrogen Oxides exceeded twice the 500mg/m3 ELV at engine number 1.

The results above show very high emissions and there are question marks over the validity of the data. It is noted that some of the readings over the period were recorded as negative values for prolonged periods of time. Some of the high readings appear to have been measured at weekends when the engine was not running – the validity of the data is therefore questionable. The monitoring equipment was last calibrated on 26th October 2011 and was found to be working well at the time.

As agreed with the Agency, a full dataset from continuous monitoring at the outlet is available in digital or hard copy format upon request, but due to the sheer volume of data involved, is not presented in this quarterly report.

2nd Quarter 2012

During Q1 reporting, it was found that there was an issue with the levels of gas recorded by the continuous monitoring equipment, with values completely out of range.

A service was carried out on 09/05/2012 (see correspondence FCC-127-01-2012-08), after which the values resumed to normal levels. As per correspondence referred to above, the values prior to 09/05/2012 will be put aside for the analysis of the data.

(a) No 24 hour mean value shall exceed the ELV;

No 24 hour means exceeded 500 mg/m3 for Nitrogen Oxides and no 24 hour means exceeded 1400 mg/m3 for Carbon monoxide at engine number 1.

(b) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value.

No 30 minute mean values or 0% of samples taken continuously over this quarter for Carbon monoxide exceeded 1.2 times the 1400mg/m3 ELV at engine number 1. No 30 minute mean values or 0% taken continuously over this quarter for Nitrogen Oxides exceeded 1.2 times the 500mg/m3 ELV at engine number 1.

(c) No 30-minute mean value shall exceed twice the emission limit value.

No or 0% of 30 minute mean values taken continuously over this quarter for Carbon monoxide exceeded twice the 1400mg/m3 ELV at engine number 1. No or 0% of 30 minute mean values taken continuously over this quarter for Nitrogen Oxides exceeded twice the 500mg/m3 ELV at engine number 1.

The results above show compliance with the ELV – for the period 09/05 to 30/06 (09th May being the day the service was carried out and replacement cells provided to the system as per correspondence FCC-127-01-2012-08).

3rd Quarter 2012

Bioverda Power System changed the engine in Dunsink on 1st August 2012 – with the old engine stopped on 31/07 (see correspondence FCC-127-1-2012-05 re: notification of a change of engine). After the new engine was reconnected, delays were encountered by Bioverda to reconnect the engine emissions monitoring equipment. Two incident notifications were issued to the Agency on the fact that monitoring equipment was offline (11 and 20/09/2012).

During Q3 2012, July is the only month when emissions were measured and below are the results of the monitoring.

(a) No 24 hour mean value shall exceed the ELV;

No 24 hour means exceeded 500 mg/m3 for Nitrogen Oxides and no 24 hour means exceeded 1400 mg/m3 for Carbon monoxide at engine number 1.

(b) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value.

No 30 minute mean values or 0% of samples taken continuously over this quarter for Carbon monoxide exceeded 1.2 times the 1400mg/m3 ELV at engine number 1. 2 No. 30 minute mean values or 0.14% taken continuously over this quarter for Nitrogen Oxides exceeded 1.2 times the 500mg/m3 ELV at engine number 1.

(c) No 30-minute mean value shall exceed twice the emission limit value.

No or 0% of 30 minute mean values taken continuously over this quarter for Carbon monoxide exceeded twice the 1400mg/m3 ELV at engine number 1. No or 0% of 30 minute mean values taken continuously over this quarter for Nitrogen Oxides exceeded twice the 500mg/m3 ELV at engine number 1.

The results above show compliance with the ELV – for the period 1/07 to 31/07 (31st July being the last day the engine ran – before being replaced by a smaller engine in which the emissions monitoring equipment has been delayed being reconnected).

4th Quarter 2012

Bioverda Power System changed the engine in Dunsink on 1st August 2012 – with the old engine stopped on 31/07 (see correspondence FCC-127-1-2012-05 re: notification of a change of engine).

The monitoring equipment had been fully reconnected on 05/10/2012 – but still needed to be calibrated when the engine was running again (engine down for repairs on 05/10/12). This was calibrated on 30/10/2012.

Upon downloading the data from the monitoring equipment, the results show a constant value from 19/11/2012 to 31/12/2012 – which is indicative of an error on the system (it should normally sample the emissions every 15 minutes). This incident was notified to the Agency on 8th January 2013.

For the analysis of the results, we will only consider the data from 30/10/2012 at 13.00 to 19/11/2012 at 12.46 as these are the only results available.

An engineer from Automatic Flare Systems was called to inspect the unit and he found a part had come loose inside the panel, which rendered it in-operational. The monitoring equipment was re-connected and left working on the 7th January 2013.

(a) No 24 hour mean value shall exceed the ELV;

0 No. 24 hour means exceeded 500 mg/m3 for Nitrogen Oxides and 0 No. 24 hour means exceeded 1400 mg/m3 for Carbon monoxide at engine number 1.

(b) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value.

0 No. 30 minute mean values or 0% of samples taken continuously over this quarter for Carbon monoxide exceeded 1.2 times the 1400mg/m3 ELV at engine number 1. 0 No. 30 minute mean values or 0% taken continuously over this quarter for Nitrogen Oxides exceeded 1.2 times the 500mg/m3 ELV at engine number 1.

(c) No 30-minute mean value shall exceed twice the emission limit value.

0 No. or 0% of 30 minute mean values taken continuously over this quarter for Carbon monoxide exceeded twice the 1400mg/m3 ELV at engine number 1. 0 No. Or 0% of 30 minute mean values taken continuously over this quarter for Nitrogen Oxides exceeded twice the 500mg/m3 ELV at engine number 1.

The results above show compliance with the ELV – for the period 30/10 to 19/11 (the only period for which data was available).

As agreed with the Agency, a full dataset from continuous monitoring at the outlet is available in digital or hard copy format upon request, but due to the sheer volume of data involved, is not presented in this quarterly report.

3.8.5 Summary of Continuous Sampling of Emissions at Landfill Gas Combustion Plant

The available results from continuous sampling of parameters from outlets at landfill gas combustion plant throughout 2012 presented a general picture of compliance with emission limit values apart from Q1 where there were question marks over the validity of the data.

3.9 METEOROLOGICAL MONITORING

Condition 8.6 and Schedule D.6 require daily monitoring of precipitation volume, temperature (min/max), wind force and direction, evapotranspiration, humidity and atmospheric pressure. This data is obtained from Met. Éireann's Dublin Airport Weather Station and the data are illustrated by month in the following tables / figures. The data is available in full tabular format at the facility offices.

Table 12: Meteorological Data for Dublin Airport Synoptic Weather Station 2012

	Monthly rainfall (mm)	avg. daily wind speed (knots)	Monthly evaporation (mm)	Monthly potential evapotranspiration (mm)	avg. max. temp. (deg.C)	avg .min. temp. (deg.C)
Jan-12	63	14.5094	18.9	14.4	8.97	3.32
Feb-12	20.5	11.0560	26.5	18.3	9.15	4.03
Mar-12	25.6	9.3333	56.4	38.9	12.39	3.53
Apr-12	90.2	11.6264	70.8	44.7	10.45	2.84
May-12	60.4	8.9086	90.9	61.5	14.26	5.37
Jun-12	147.7	9.9375	97.8	66.3	16.22	9.09
Jul-12	85.3	9.2176	103.9	70.5	18.00	10.01
Aug-12	78.1	9.6559	79.5	58.9	19.14	11.54
Sep-12	83.4	11.7459	73.0	49.4	16.23	7.71
Oct-12	71	9.7877	35.7	25.2	11.92	4.87
Nov-12	72	10.9583	19.4	15.4	9.50	3.33
Dec-12	52.3	12.1828	12.1	9.8	8.37	2.43
Totals	**849.5**		**684.8**	**473.3**		

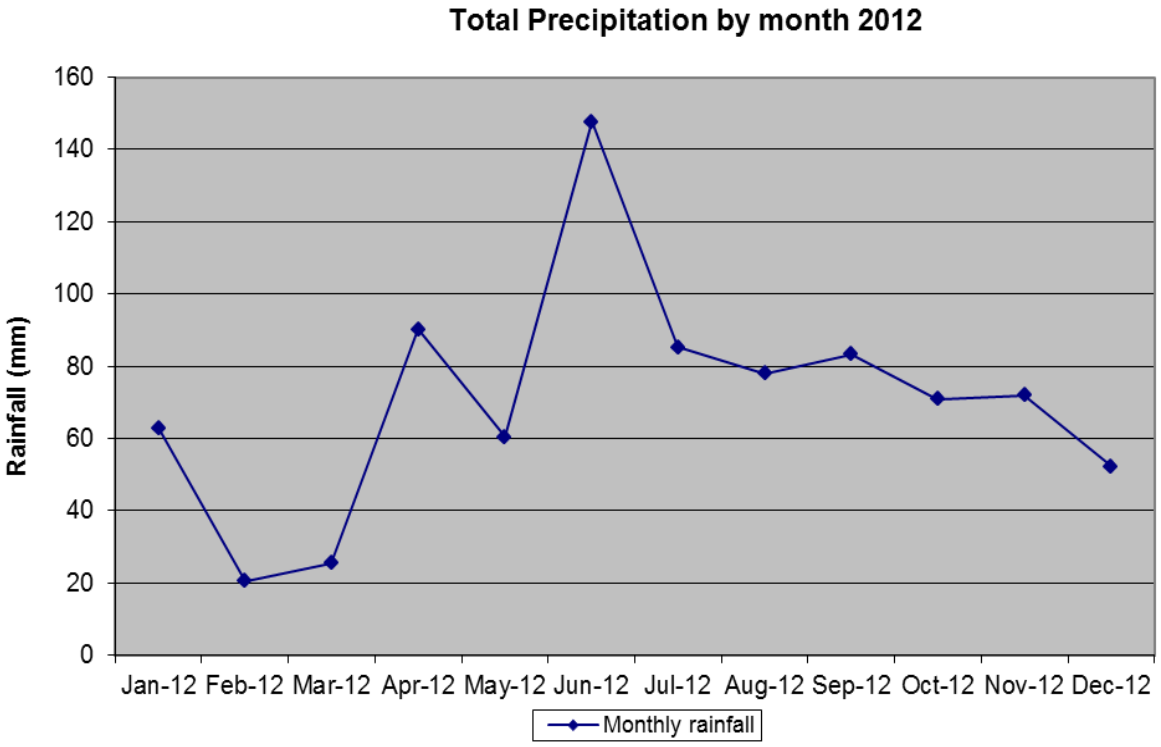

Figure 8: Total Precipitation mm by Month 2012

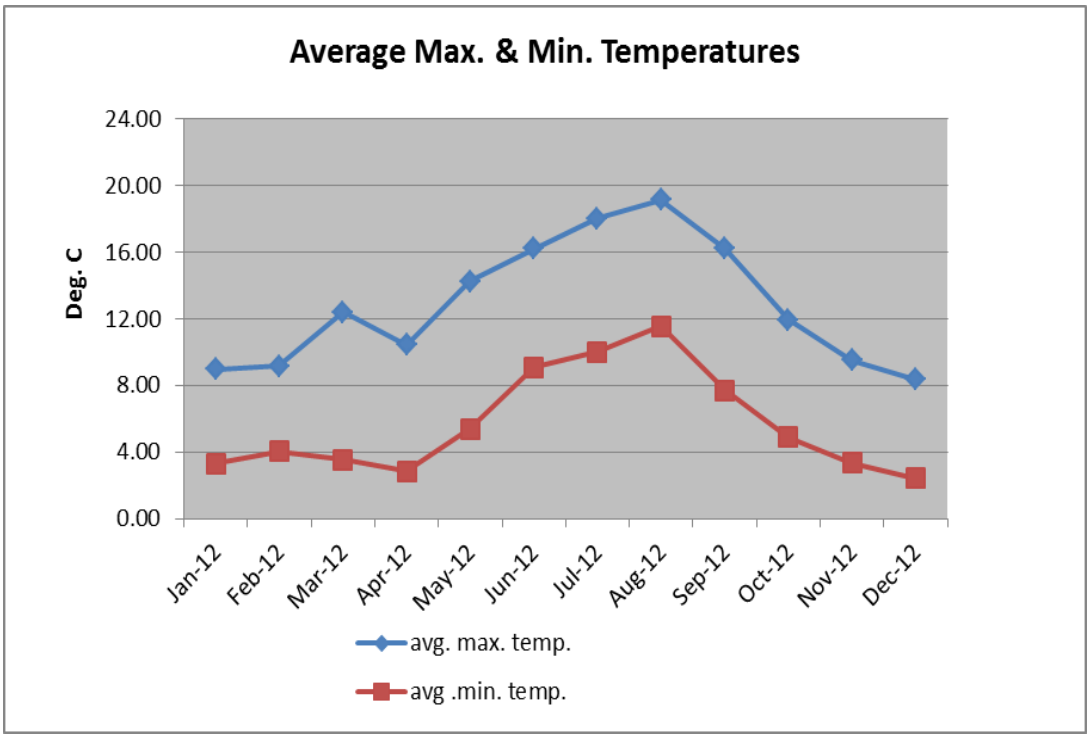

Figure 9: Average Daily Temperatures (Minimum/Maximum) by Month 2012

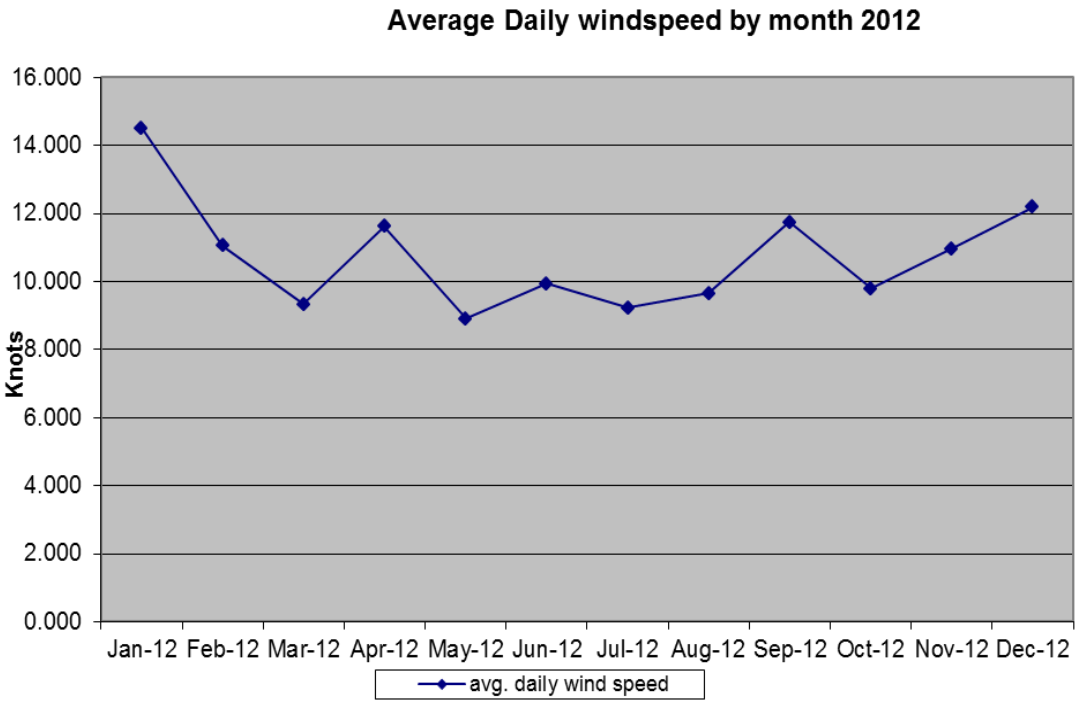

Figure 10: Average Daily Windspeed by Month 2012

Figure 11 below shows a Rose Diagram of average daily wind direction measured at Dublin Airport. The figure shows the winds during 2012 are predominantly West to South Westerly in direction.

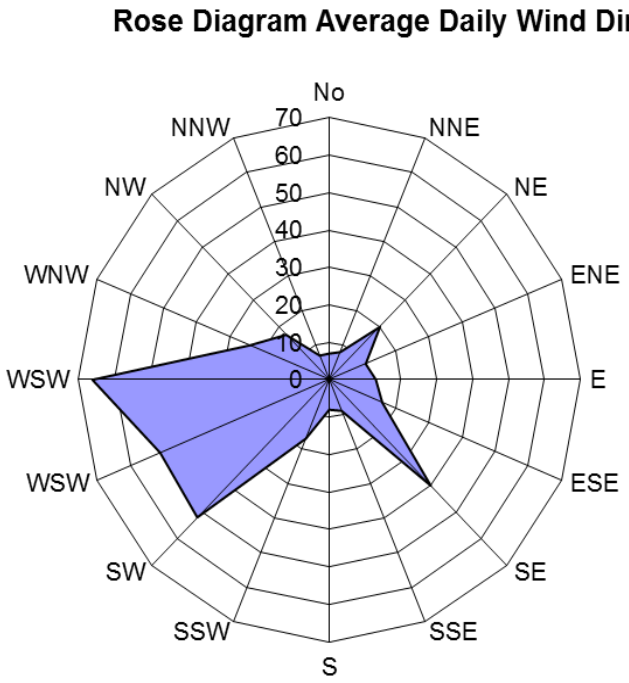

Figure 11 - Rose Diagram of Average Daily Wind Direction at Dublin Airport

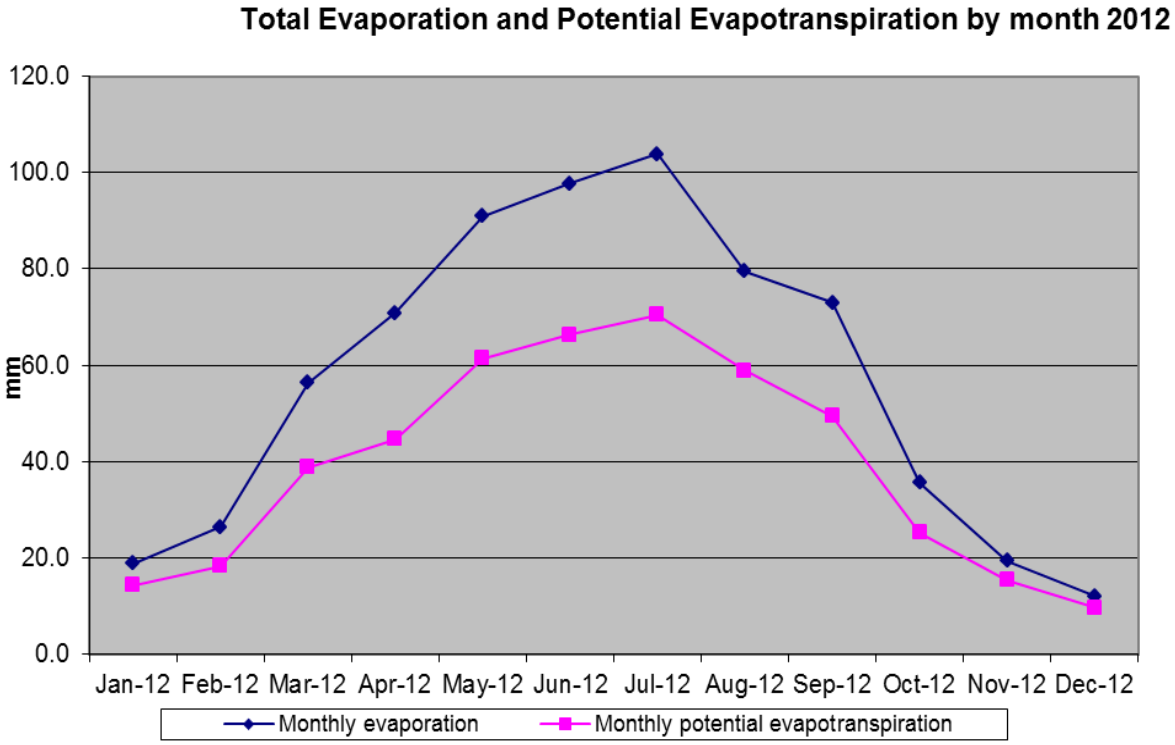

Figure 12: Average Evaporation and Potential Evapotranspiration by Month 2012

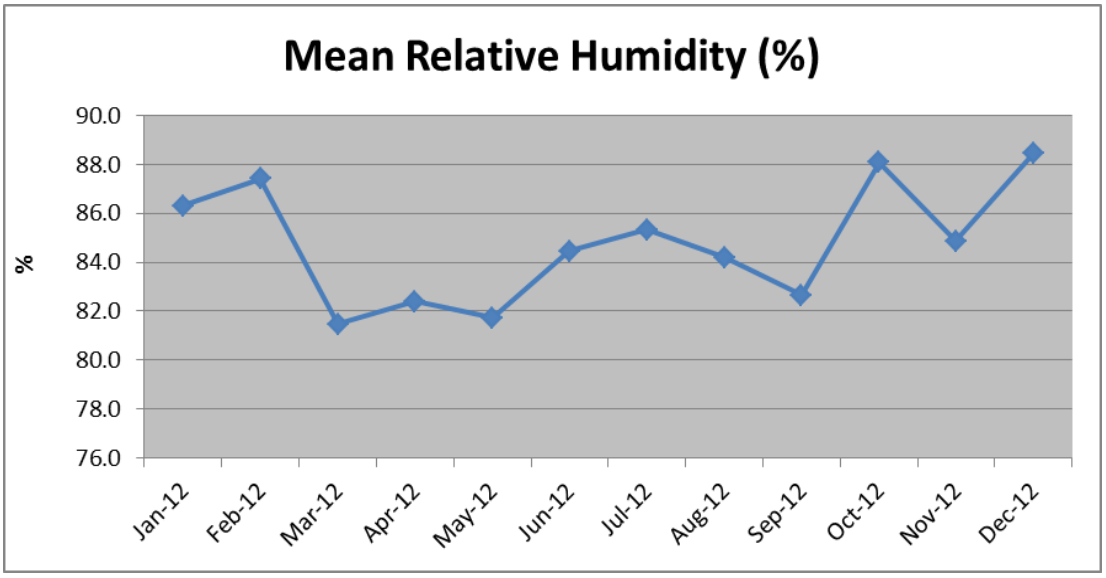

Figure 13 - Average Daily Relative Humidity by Month 2012

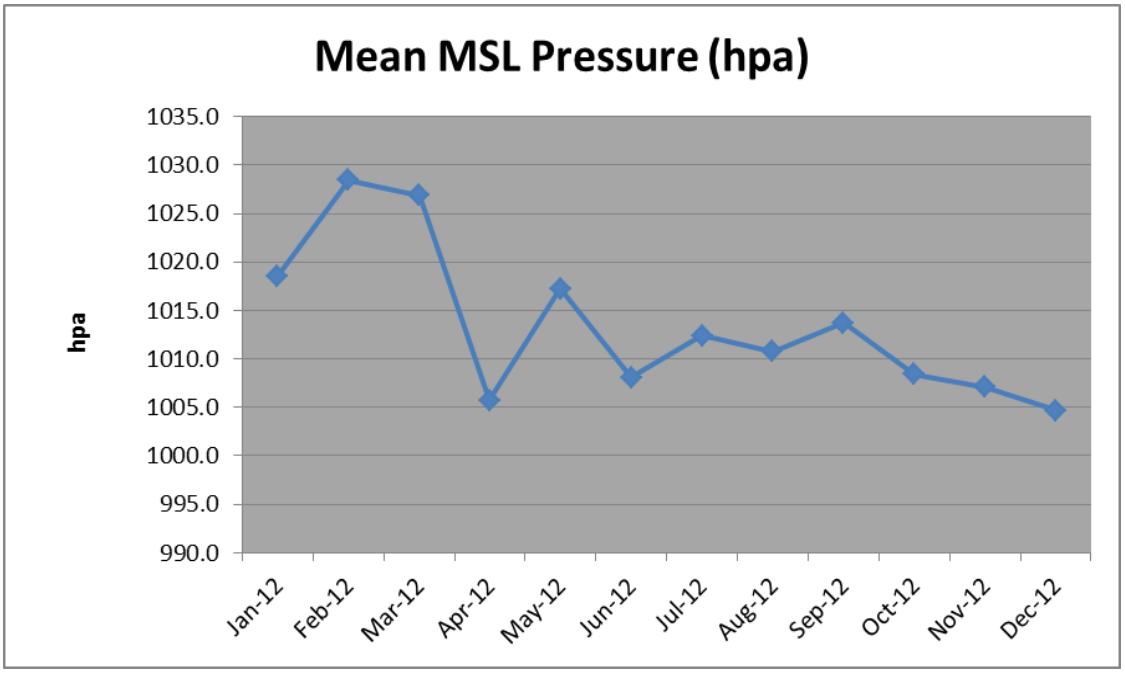

Figure 14 - Average Daily Atmospheric Pressure by Month 2012

4.0 RESOURCE & ENERGY CONSUMPTION

Resources consumed at Dunsink Landfill include diesel fuel, electricity and hydraulic oil. There were three main consumer entities operating on site:

Fingal County Council (FCC)
Contractors
Bioverda Power Systems (BPS)

4.1 FINGAL COUNTY COUNCIL

The compound offices were connected to the national electricity grid in March 2005. The compound offices are no longer occupied, and FCC at Dunsink consumes electricity at the pump house. FCC did not consume hydraulic oil. The main component of FCC's resource and energy consumption was electricity (Table 13).

4.2 CONTRACTORS

Contractors on site consumed diesel fuel in the operation of their plant, which comprises; mainly one JCB (Table 13)

Resource	FCC	Contractors	BPS	Total 2012	Total 2011	Total 2010
Electricity MWh	69*	Nil	63	132*	156*	132*
Diesel Vehicles	3,000*	8,100*	Nil	11,100 *	11,100*	11,100*
Diesel Pump	Nil	Nil	Nil	Nil	Nil	Nil
Hydraulic Oil	Nil	60*	Nil	60*	60*	60*
Lubricating Oil	Nil	200*	3,738	3,938*	3,000*	2,180*

Table 13: Summary of Resources used on site for the reporting period

*Estimates

4.3 BIOVERDA POWER SYSTEMS

BPS on site consumed less electricity and more lubricant oil when compared to 2011.

5.0 VOLUME OF LEACHATE PRODUCED AND DISCHARGED OFF-SITE

A flow metre measuring volumes of leachate produced from the facility or volumes of leachate discharged off-site was installed with the new pump house in June 2005. However, during 2004 efforts were made to get estimates for leachate production in Dunsink to determine the appropriate capacity of current and proposed leachate infrastructure. It was considered important in view of the daily discharge limit of 1,400m^3 imposed by the Sanitary Authority (Dublin City Council) to determine responses should this limit be breached.

5.1 METHODS FOR ESTIMATING LEACHATE PRODUCTION

An annual water balance calculation was performed to estimate leachate production in Dunsink. This figure is compared with figures measured as discharged offsite (See Table 14).

5.1.1 Water Balance Calculations

In calculating the water balance for Dunsink the formula used was taken from Environmental Protection Agency (EPA) guidelines (EPA 2000)[1]. Rainfall data from Dublin airport Meteorological station are used in this calculation. Data from 2012 is used in the average and scenario calculations.

Lo = [ER(A) + LW + IRCA + ER(l)] – [aW]
Whereby;
ER = effective rainfall (m).
A = Area of cell (m^2).
LW = Liquid waste (also includes excess water from sludges) M^3.
IRCA = Infiltration through restored and capped areas (m^3).
l = Surface area of lagoons (m^2).
a =absorptive capacity of waste M^3/t.
W = weight of waste deposited.

ER = Total Rainfall (R) minus Actual Evapotranspiration (AE).
For Dunsink landfill, following the guidance given in the EPA guidelines the ER is taken as R.
Total rainfall (R) for Dunsink in 2012 was 849.5mm or **0.8495m**.

[1] Environmental Protection Agency (2000). Landfill Manuals; Landfill Site Design. EPA, Ireland. ISBN 1 84095 026 9

A= The landfill area is 154 acres or 62.3 hectares or **623,000m^2**. No area is active, there has been no dumping of municipal waste for over seven years.

ER(A)=0

LW = Liquid waste is not deposited in Dunsink - 0m^3.

IRCA = In areas that have been temporarily capped / restored an infiltration rate of 25-30% of the annual rainfall should be used. In areas which have been restored an infiltration rate of 2-10% should be applied. Given that the landfill is now restored 10% will be used as the infiltration rate through restored and capped areas.
10% of ER = 0.08495. 623,000m^2 X 0.08495m=52,923.85m^3

IRCA= 52,923.85m^3
l = In Dunsink the area of the lagoon is 6,000m^2, ER=0.8495
ER(l) =5,097m^3

aW = The total volume of waste has been calculated roughly, as 3.3 million m^3 on the basis of volume of three phases of landfill. It has also been roughly estimated that approximately 5,000,000 tonnes of waste have been deposited in Dunsink based on figures available from 1994 for annual inputs to the site. On this basis the roughly estimated waste density is 1.5t/m^3. This is very high and may be due to compaction by its overburden of subsoil or fill. The absorptive capacity of waste falls to negligible or none per tonne of waste before leachate is generated at densities greater than 1.2t/m^3,
aW=0 m^3/tonne

Lo = [ER(A) + LW + IRCA + ER(l)] – [aW]

Lo = [0 + 0 + 52,923.85+ 5,097] – [0]

Lo = 58,020.85m^3 pa
Lo = 158.96m^3 /d
Lo = 6.62m^3 /hr

5.1.2 Scenario Building

This rough estimate should be viewed in the context of varying annual rainfall over a year period. Water balance calculations should be carried out for a number of scenarios such as average monthly leachate volumes to be generated (See Table 14).

Table 14: Estimates of Leachate Production: Average Monthly rainfall recorded at Dublin Airport 2012 (Source: Met Éireann)

2012	Rain (mm)	Rainfall % Total	Estimated Monthly Leachate Production M^3
January	63	7.42%	4302.9
February	20.5	2.41%	1400.15
March	25.6	3.01%	1748.48
April	90.2	10.62%	6160.66
May	60.4	7.11%	4125.32
June	147.7	17.39%	10087.91
July	85.3	10.04%	5825.99
August	78.1	9.19%	5334.23
September	83.4	9.82%	5696.22
October	71	8.36%	4849.3
November	72	8.48%	4917.6
December	52.3	6.16%	3572.09
Total 2012	0.8495	100%	58020.85

The EPA guidelines (EPA, 2000) suggest a peak flow factor of 3 to 5 times the predicted average flow rate should be used when sizing plant / pipe work. Therefore using 2012 rain data and allowing for the now completed restoration of Dunsink, an adequate pump station should be able to handle about (6.26 * 3) to (6.26 * 5) or 18.78 m^3/hr to 31.3 m^3/hr during wet weather flow. During 2012, the volume of leachate discharged to public sewer was 223,333m^3 which equates to 25.49m^3/hr.

5.1.3 Results

Water balance calculations from EPA guidelines for Dunsink during peak wet conditions suggest that leachate production / discharge could be in the range of 451-751m^3 /day.

5.1.4 Discussion

The results presented above are estimates only. The results from this exercise (EPA model), indicate that Dublin City Council's discharge limit of 1,400m^3/day would not be breached and the leachate lagoon would not ordinarily be needed to deal with any excess leachate generated. The lagoon has a capacity of 26,700m^3. The pump house design facilitates pumping a maximum of 20 litres/s or 72m^3 / hr or 1,728m^3 / day and the modelled leachate production is well below this.

The new pumping arrangements installed during June 2005 provide data for the volume of leachate generated at the facility (Table 15).

Table 15: Estimates of Leachate Production and Volumes Measures as Discharged from site

2012	Rain mm	%	Estimated Monthly Leachate Production M^3	Volume Discharged as Measured By Flow Metre
January	63	7.42%	4302.9	19787
February	20.5	2.41%	1400.15	16324
March	25.6	3.01%	1748.48	11985
April	90.2	10.62%	6160.66	13373
May	60.4	7.11%	4125.32	22533
June	147.7	17.39%	10087.91	24802
July	85.3	10.04%	5825.99	26550
August	78.1	9.19%	5334.23	13213
September	83.4	9.82%	5696.22	12609
October	71	8.36%	4849.3	20883
November	72	8.48%	4917.6	19540
December	52.3	6.16%	3572.09	21735
Total	**0.8495**	**100%**	**58020.85**	**223333**

The estimated monthly leachate production is significantly and substantially less than the actual volumes measured as discharged from site. There may be a groundwater influence in leachate generation at the site which accounts for this anomaly. The EPA water balance calculation is based on rainfall contribution to leachate generation.

Since 2006 a significant rise in leachate pumped off-site has occurred and it is considered that this is partially explained by the emplacement of two major leachate interception drains

at the north and south of the facility. These leachate interception drains are obviously harnessing significant amounts of leachate and contributing to the leachate load at Dunsink.

5.1.5 Conclusion

Given all the results presented above (the varied estimates for leachate production and the actual volumes discharged offsite), it is suggested that the pump house design, in conjunction with the option to use the lagoon periodically provides sufficient capacity for dealing with the estimated leachate generated in the landfill. The completion of the restoration of the site during 2008 and 2009 has led to a reduced estimate of the amount of leachate generated by the facility through the water balance calculations. However the progress in landfill restoration has ultimately resulted in greater leachate collection and consequent increased volumes of leachate being discharged offsite. Nevertheless, the data provided by the leachate flow metre continues to vindicate the capacity designed into the leachate infrastructure.

5.2 ANNUAL WATER BALANCE CALCULATIONS AND INTERPRETATIONS

5.2.1 Introduction

The actual water balance calculations are outlined in detail in Section 5.1.

5.2.2 Discussion and Interpretation

It must be stated that the results are estimates only and based on many assumptions, which may or may not be correct. Furthermore data from key variables, such as depth of waste, proximity of groundwater table and effect of springs within waste body, are unavailable.

(i) Previous estimates of the wet weather flow and dry weather flows for leachate were prepared by FCC in 2003 on the basis of direct measurements. These estimates calculated Wet Weather Flow leachate volumes in the range of 1242-1656m^3/day and 414m^3/day during dry weather flow.

(ii) Water balance calculations are presented in Section 5.1.1 from EPA guidelines for Dunsink during peak wet conditions. They suggest that peak leachate production / discharge could be 751m^3/day during wet weather and 159m^3/day during average Flow.

(iii) During 2012, the volume of leachate discharged to public sewer was 223,333m^3 which equates to 25.5m^3/hr. (See Table 15). This suggests that average leachate production/discharge over the year is 612m^3/day.

These figures must be seen in the context of the bedrock geology and aquifer status of the site. The regional view of the vicinity of the Dunsink Landfill is of a low yielding aquifer.

5.2.3 Conclusion

The results from water balance calculations and from the pump house flow-metre are very different in terms of leachate modelled as generated on site and leachate volumes pumped off-site. However both sets of results validate the choice of leachate pump house design, which was based on empirical measurements of leachate flowing through the existing infrastructure. The pump house design facilitates pumping a maximum of 20 litres/s or 72m^3 / hr or 1728m^3 / day. Dublin City Council allows a maximum discharge of 1400 m^3 / day.

The worst case scenario for Dunsink from wet weather flows derived from previous estimates at 1,656m^3/day exceeds this limit. In instances when the pump-house cannot pump away volumes as they are generated from the facility the system is self regulating. During Wet Weather Flow peak flows in excess of the limit are rare and short in duration. When they do occur the automatic valve opens and closes to regulate the level of leachate in the sump and facilitate controlled discharge of leachate to public sewer or the lagoon. The lagoon has additional capacity of 26,700m^3 and if empty would have capacity for 16+ days pumping to lagoon during wet weather flow. This contingency provides for scenarios whereby pumping to the public sewer would not be feasible for any reason.

The results suggest that the pump house design, in conjunction with the option to use the lagoon periodically may provide sufficient capacity for dealing with the estimated leachate generated in the landfill.

5.3 ESTIMATED ANNUAL AND CUMULATIVE QUANTITY OF INDIRECT EMISSIONS TO GROUNDWATER

5.3.1 Emissions to Groundwater - Introduction

At present there are no estimates for annual and cumulative quantities of indirect emissions of leachate to groundwater.

Inferences are made from estimates in Sections 5.1.1 (estimates of leachate going through leachate management infrastructure during Wet Weather Flow) and 5.1.2 (estimates of leachate generated at the facility based on water balance calculations). At the outset, it must be stated that this is an exercise fraught with difficulties in that these estimates are based upon many assumptions, which may or may not be correct. Furthermore; data from key variables such as depth of waste, proximity of groundwater table and effect of springs within the facility; are unavailable.

Nevertheless the volumes of leachate discharged from the facility consistently and substantially exceed those estimated from water balance calculations.

5.3.1.1 Dry weather flow

The leachate infrastructure and discharge consents from Dublin City Council are more than adequate to deal with the volumes of leachate generated in Dunsink during dry weather flow. This suggests that there may be no indirect emissions to groundwater during Dry Weather Flow conditions.

5.3.1.2 Wet weather flow

The leachate infrastructure system seems to be "flashy" i.e. the amount of leachate going through the system rapidly increases following rainfall events. For all but the highest peaks in wet weather flow the leachate infrastructure and discharge consents from Dublin City Council are more than adequate to deal with the volumes of leachate generated in Dunsink and there is little risk of contamination of groundwater.

In instances when the pump-house cannot pump away volumes as they are generated from the facility the system is self regulating. Peak discharges during Wet Weather Flow are rare and short in duration, the automatic valve opens and closes to regulate the level of leachate in the sump and facilitate controlled discharge of leachate to public sewer or the lagoon.

5.3.2 Bedrock Geology of the site and Aquifer Status

The western half of the landfill is underlain by Waulsortian Limestones. The GSI classify the County Meath Waulsortian Limestones as Ll, bedrock which is moderately productive only in local zones and this can be assumed to be the case for Dunsink.

The central part of the landfill is underlain by the Tober Colleen formation. The thinly bedded mudstones of the Tober Colleen formation which underlie the Calp Limestone have been

classified by the GSI as Pu, bedrock which is generally unproductive due to the low permeability of the bedrock.

The eastern part of the site is underlain by basinal limestones consisting of limestone turbidites with bioclastic and calcareous mudstones (Calp Limestone). The Calp Limestone of County Dublin has been classified in the GSI Groundwater Protection Scheme as a Ll aquifer, bedrock which is generally moderately productive.

There is a minor faulting in the vicinity of the site and there is a minor fault running in a north-west south-east direction through the site.

A number of boreholes have been drilled into the bedrock on the site and a visual inspection of the drill chips from the monitoring boreholes indicated the site to be generally underlain by the soft black basinal (Calp) limestones and mudstones. These were recorded at all boreholes that were drilled to bedrock. The hardness and shade of the rock varied between boreholes and between different depths within the same borehole.

The monitoring well drilling programme confirmed the regional view that the area in the vicinity of Dunsink Landfill should be classified as a low to moderate yielding aquifer.

5.3.3 Conclusion

On the basis that

(1) The underlying geology and overburden have produced a localised classification of the aquifer as generally low to moderate yielding.
(2) Measured volumes of leachate discharged from the facility are consistently and substantially higher than those calculated through water balance calculations.
(3) The groundwater monitoring programme indicates that groundwater around the facility is generally good;

It is considered that indirect discharges to groundwater are not significant in volumes or effect.

6.0 WORKS PROPOSED AND UNDERTAKEN & TIMESCALE FOR THOSE PROPOSED DURING THE COMING YEAR

6.1 WORKS UNDERTAKEN DURING 2012

The phased handover of the landfill and surrounding areas to the Parks (now Operations) Department was completed by December 2009. The Environment Department continued with all monitoring obligations as set out in the landfill license.

In 2012, Fingal County Council Operations Department worked closely with the Irish Horse Welfare Trust and local horse owners in Dunsink in an effort to address and regulate the situation with regard to the wandering horses in Dunsink.

The Council, the Irish Horse Welfare Trust and the owners have now formed a club, which regulates the numbers of animals on the site, all of the horses are now microchipped and passported, and traceable to their owners.

Temporary stables have been installed to provide shelter for the horses for the winter season.

Tree planting took place in an area of around 4 acres to the North of the landfill – adjacent to the M50 motorway. Approximately 10,000 trees were planted in a rectangular area of 400m long by 50 m wide. The trees planted were a mixture of Birch, Alder, Ash, Hazel and Pine.

6.2 WORKS PLANNED FOR 2013

In 2013, maintenance works identified in the slope stability report shall be completed, such as clearing vegetation from the drainage stone.

Works to ensure compliance with the ELV for dissolved methane in the leachate pumped to the sewer will also be undertaken,

There are also plans to advance the works on permanent stables and grazing paddocks for the horses in an area to the East of the landfill in the vicinity of St Joseph's Halting Site. The advancement of that project will be subject to regulatory approvals and funding availability. Once the project is completed the horses should no longer be grazing on the landfill.

7.0 SITE SURVEY INDICATING EXISTING LEVELS OF THE FACILITY

Fingal County Council sought approval from the Environmental Protection Agency on the 13/08/2009, (letter Ref FCC-127-1-2009-010) not to undertake a topographic survey in 2009. This was due to the fact that there was no importation of soil into the restored landfill and no subsidence was anticipated. Approval was given by the EPA on the 20/08/2009 by telephone from Mr Eamonn Merriman. A telephone conversation with Mr Merriman on 28/01/2013 confirmed that an updated topographic survey was not required. Figure 15 below shows the topographic status of the landfill as established by the most recent topographic survey completed in 2007.

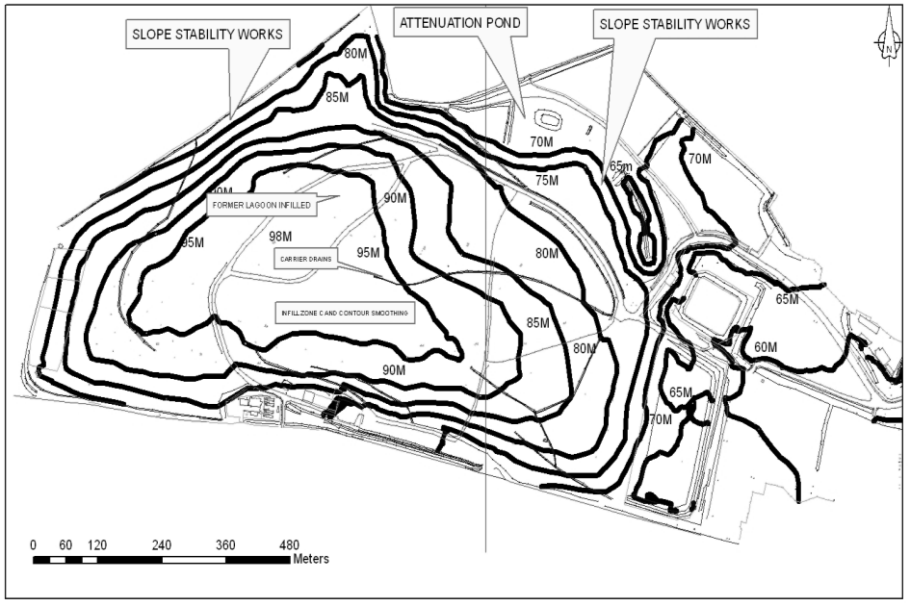

Figure 15: Simplified Topographical Map of Dunsink 2007

8.0 ESTIMATED ANNUAL & CUMULATIVE QUANTITY OF LANDFILL GAS EMITTED

In early 1996 a gas collection network was first configured throughout the whole landfilled portion of Dunsink. In 1999 the collection network was replaced by a larger more extensive arrangement.

It is comprised of a high-density polyethylene (HDPE) ring main around the site with a number of branch lines, which contains manifolds that connect to individual gas extraction wells.

There are approximately eighty-five gas extraction wells connected to manifolds throughout the site. Some of the wellheads are buried so it is not physically possible to confirm their condition or truly assess their performance. An additional thirteen gas wells were installed in Zone A and six additional gas wells were installed in Zone C during 2006.

There are ten branch lines off the main collection ring. These branches are 250mm in diameter and have multi-outlet manifolds configured to collect the gas from the wells in their vicinity. Each branch can be isolated where it connects to the main line. The manifold arrangement allows the line from the individual wells to be sampled and controlled. This has the effect of balancing the "good gas" with the bad to maintain the optimum quality to the utilisation plant.

The mainline ring is a 355mm HDPE pipe that completely encircles the landfill and finishes back at the utilisation plant compound. It has two dewatering chambers, one next to the old main landfill entrance and the other adjacent to the IPS compound, where the collected condensate is returned to the waste body via a disused extraction well. This ring main can be isolated in a number of locations to permit maintenance operations and still maintain operation of the utilisation plant.

The extraction pump which feeds the remaining generator (one was removed from site during 2006) is capable of collecting three thousand cubic metres of gas per hour at a maximum suction pressure of –150mbar. It is currently delivering approximately three hundred and eighty cubic metres per hour at a quality of 49%CH_4. In the unlikely event the engine is out of service for an extended duration, the integral flare can be run to maintain negative pressure on the landfill.

8.1 LANDFILL GAS CONSUMED BY UTILISATION PLANT 2012

Figures for landfill gas emitted from the facility are derived from data submitted by Bioverda Power Systems for the utilisation plant in Dunsink. The migration issues of previous years are largely resolved and the utilisation plant controls the vast majority of the landfill gas emitted. The figures for 2012 are presented in Table 16.

8.2 LANDFILL GAS CONSUMED BY UTILISATION PLANT AND GENERATED BY FACILITY 1996-PRESENT

The amount of landfill gas utilised by the plant has continued to trend downwards as would be expected but utilisation is dropping less sharply in recent years than the period 2003-2005.

In 2009, 2010 and 2011 the gas engine occasionally 'ran out of gas' at viable concentrations indicating that the gas field production is decreasing at an increasing rate. That trend continued in 2012 with the engine regularly 'running out of gas' and having to be restarted after giving the field an opportunity to recover, typically 48-60 hours.

In August 2012, the engine was swapped for a smaller engine, more efficient to run with the amount and quality of landfill gas present in Dunsink. The new engine has been running since early August 2012.

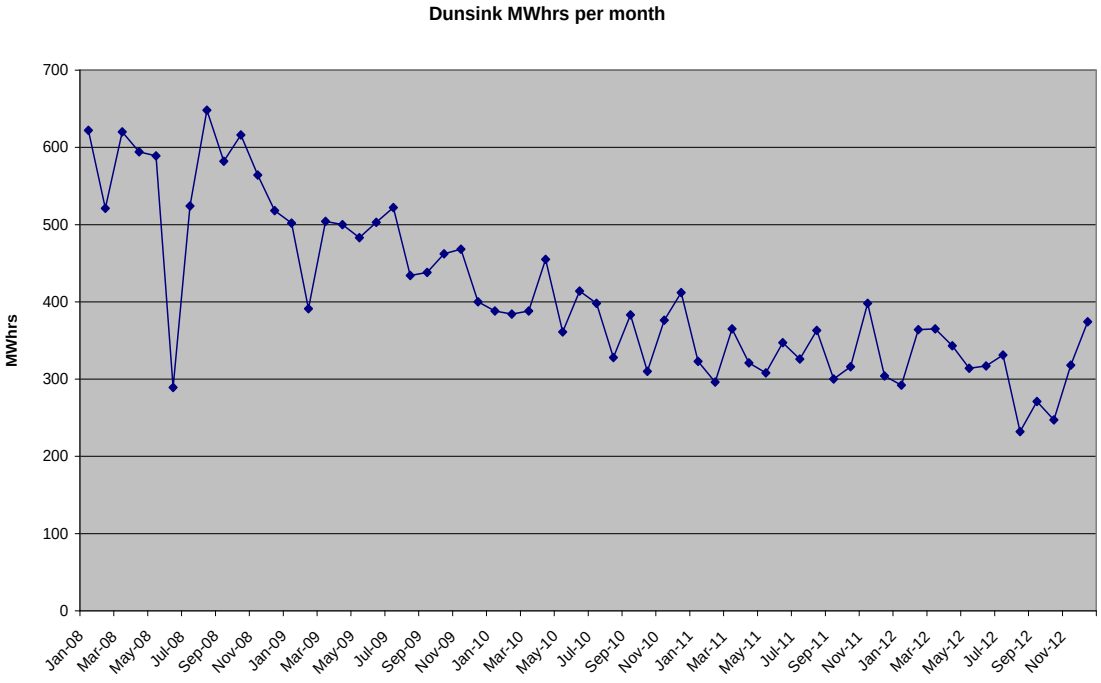

Figure 16 - MWhr exported per month at Dunsink.

Bioverda are reporting that supply of gas has dropped sharply. It is considered that landfill gas migration is not an overwhelming issue at Dunsink and it is suggested that these figures reflect a downward pattern over time of landfill gas emitted from the facility.

Bioverda POWER SYSTEMS LTD

Table 16: landfill gas consumed by utilisation plant 2012

	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Diesel	Litres	0	0	0	0	0	0	0	0	0	0	0	0	0
Electricity Consumed	kWhrs	11966	7317	7507	5244	4480	4272	3537	5851	4395	4930	2437	1297	63233
Oil (Lubrication)	Litres	300	350	300	0	288	300	0	450	0	800	500	450	3738
Landfill Gas	1000' Cubic metres	233	290	291	274	251	253	264	185	216	197	254	298	3007
Average Monthly Ch4	% by Volume	49	49	49	49	49	49	49	49	49	49	49	49	49
Electrical units exported (power output)	MWhrs	292	364	365	343	314	317	331	232	271	247	318	374	3768

Data compiled and verified by: Simon Kelly, Greenstar GDA and BPS Engineering Manager

9.0 REPORT ON PROGRESS TOWARDS ACHIEVEMENT OF ENVIRONMENTAL OBJECTIVES AND TARGETS CONTAINED IN PREVIOUS YEAR'S REPORT.

This is the ninth AER under this Licence. In 2011 the majority of objectives for the facility nearing completion were fully completed and the Enclosed Flare was commissioned and handed over to Fingal County Council.
The Phased Handover of the landfill and surrounding areas to the Parks Department which began in 2008 was completed as of December 2009
Capping works, final landscaping and slope stability maintenance were completed in 2009.
Environmental Infrastructure Inspection, Maintenance and Monitoring were on-going in 2012.

9.1 SCHEDULE OF ENVIRONMENTAL OBJECTIVES AND TARGETS 2012

The schedule of environmental objectives is complete and has now been withdrawn from the AER.

10.0 PROCEDURES DEVELOPED RELATING TO THE FACILITY OPERATION

No new Standard operating procedures (SOP`s) were introduced in 2012.

11.0 TANK, PIPELINE AND BUND TESTING AND INSPECTION REPORT

The leachate lagoon and bund tests were last conducted in October 2007. Conditions 3.10.5 and 5.10.2 of the licence require that integrity tests be carried out on the leachate lagoon and oil bunds every three years by an independent and appropriately qualified chartered engineer.

12.0 Lagoon

An integrity test was carried out on the leachate lagoon in late January 2012 and it passed the test. The results of the integrity test were submitted to the Agency in February 2012 (FCC-127-1-2012-03).

12.1 Oil Bund IPS Compound- Dunsink

An integrity test was conducted during October 2007 on the oil bund on the IPS compound. The bund integrity was found to be good, it was watertight and found fit for its intended use. Oil is no longer stored in the compound – it is therefore proposed not to carry out further integrity test on the disused bund.

13.0 REPORTED INCIDENTS AND COMPLAINTS SUMMARIES

13.1 REPORTED ENVIRONMENTAL INCIDENTS

There were 90 reported incidents in 2012 reported under condition 1.6 c) "Any trigger level specified in this licence which is attained or exceeded"; and d) "Any indication that environmental pollution has, or may have, taken place." 31 of these were notified to the Eastern Regional Fisheries Board during 2012.

In October 2012 the Agency agreed that any incidents relating to gas should only be notified to the Agency where methane levels exceeded 1% or where there were unusually high levels of carbon dioxide. Levels of carbon dioxide have regularly exceeded the 1.5% threshold and in each case were notified to the Agency. It was agreed that only unusually high levels for the site should be notified to the Agency from 1/11/12 onwards.

Table 17: Summary of reported incidents during 2012

	EPA/ERFB Notified				
	Surface Water	Groundwater	Landfill Gas	Dissolved Methane	
Month	**2012**	**2012**	**2012**	**2012**	
January	4		4		
February	5		5	1	
March	4		4		
April	0		4		
May	5	1	5	1	
June	2		4		
July	0		4		
August	1		5	1	
September	3	1	6		
October	5		5		
November	0		2**		
December	2	1	2 +2**	1	
Total	**31**	**3**	**52**	**4**	

ERFB - Eastern Regional Fisheries Board.

** Non reported incidents

Incidents from weekly inspections of surface waters and gas monitoring were notified to FCC, the EPA and the ERFB where relevant by 10am the day following monitoring/inspections. Exceedances of groundwater and Dissolved methane were reported in the quarterly reports.

Each of the weekly surface water and gas incident reports generally included for exceedance of trigger levels at a number of monitoring stations.

Surface water incidents in the main were caused by elevated levels of ammonia and/or conductivity during Winter months particularly at the upstream monitoring stations (SW21 and SW18) and these reflected off site sources of contamination.

There were four exceedances of the ELV for Dissolved Methane in 2012 which occurred at the Leachate Sump in each quarter.

The EPA was notified of all incidents. The ERFB were notified on all incidents pertaining to surface water and Dublin City Council continues to be informed in relation to Dissolved Methane.

13.2 REPORTED ENVIRONMENTAL COMPLAINTS

Condition 10.4 of Licence 127-1 requires that the licensee shall maintain a written record of all complaints relating to the operation of the facility. No complaints were received by FCC during 2012.

It is considered that with the closure and completed restoration and improvements to landfill infrastructure since the end of 2009, the landfill is now less of an issue for its surroundings. This is a continuation of the trend in recent years. There were no complaints in 2009 while in 2008 there were just two complaints, compared with five for 2004, one for 2005 and two for 2006.

14.0 REVIEW OF NUISANCE CONTROLS

Condition 7 of Waste Licence 127-1 requires that vermin, birds, flies, mud, dust, litter, noise and odours do not give rise to nuisance at the facility or in the immediate area of the facility.

Staff for the Operations Department access the landfill on a regular basis and tackle any nuisance as they arise. The site is also monitored every week by the landfill manager and any outstanding issues observed are reported to be addressed.

15.0 FINANCIAL PROVISION, MANAGEMENT, STAFFING STRUCTURE & PROGRAMME FOR PUBLIC INFORMATION

15.1 FINANCIAL PROVISION

Fingal County Council has made a financial provision of €2.63 million on its accounts (as of 31 December 2012) for the aftercare of Dunsink Landfil.
Aftercare costs continue to be paid for from the revenue account and in 2012 no recourse was made to the capital reserve.

15.2 MANAGEMENT AND STAFFING STRUCTURE

The following comprise the current management structure for Dunsink Landfill in 2012.

Licence Compliance

Senior Engineer:	John Daly.
Waste Infrastructure and Enforcement:	John Daly. B.E. (Civil Engineering), M.Sc (Environmental Engineering), MIEI
Assistant Scientist:,	Mr. A. Kerveillant. Management of waste licence conditions & License Compliance. M.S.c Environment

Landfill Management

Senior Executive Officer :	Mr. John O'Brien. Manager of Castleknock / Mulhuddart Operational Area,
Senior Executive Parks Superintendant:	Ruairi O'Dulaing. Responsibility For Operations Development and transition
Inspector:	Eamonn Brady, Inspector. Responsibility for overseeing Landfill management operations
Assistant Foreman:	Paul Rattigan, Management of Landfill,

15.3 PROGRAMME FOR PUBLIC INFORMATION

Public information can be viewed at the **Council's Headquarters** between 9.30 a.m. and 12.45 p.m. and 2.00 p.m. and 4.00 p.m. Monday to Friday (excluding public holidays), unless otherwise arranged by prior appointment.
Facilities for viewing information from a computer or files are provided at Dunsink Facility office by prior arrangement with the Landfill Manager.

The website (www.fingalcoco.ie) was last updated in November 2010. It informs that the remediation and restoration phase is now complete, and also has the licence available for download.

Site visits to **Dunsink Landfill** can be arranged by applying in writing to the Landfill Manager requesting a date and time for the proposed visit and indicating the number of visitors and the purpose of such a visit and whether any presentation is required. The use of cameras and video equipment during the visit must be agreed in advance with Fingal County Council. Such requests will be accommodated where possible. Operational and security matters will take precedence and visits may be cancelled at short notice.

16.0 STAFF TRAINING REPORT

As activities at the landfill have gradually decreased since the closure and restoration phases during 2008 and 2009, training requirements have also decreased. Manual Handling training of the site operatives took place in 2009. No training took place in 2012.

GLOSSARY

Aftercare	Any measures that are necessary to be taken in relation to the facility for the purposes of preventing environmental pollution following the cessation of the activity in question at a facility.
Annually	At approximately twelve monthly intervals.
Aquifer	A formation (e.g. body of rock, gravel or sand stratum) that is capable of storing significant quantities of water and through which groundwater moves.
Baseline monitoring	Monitoring in and around the location of a proposed facility so as to establish background environmental conditions prior to any development of the proposed facility.
Borehole	A shaft installed outside a waste area for the monitoring of and/or extraction of landfill gas/groundwater. Established by placing a casing and well screen into the boring. If installed within the waste area, it is called a well.
Bunding / Berm	A dike or mound usually of clay or other inert material used to define limits of cells or phases or roadways; or to screen the operation of a landfill from adjacent properties; reducing noise, visibility, dust and litter impacts.
Capping	The covering of a landfill, usually with low permeability material (landfill cap).
Condensate	The liquid which forms within the gas pipe work due to the condensation of water vapour from landfill gas.
Detection limit.	The concentration of the determinant for which there is a 95% probability of detection when a single analytical result is obtained, detection being defined as obtaining a result which is significantly greater (p=0.05) than zero. Also referred to as Limit of Detection.
Direct discharge	The introduction into groundwater of List I or II substances without percolation through the ground or subsoil.
Downgradient	The direction towards which groundwater or surface water flows.
Emission	Meaning assigned by the EPA Act of 1992.
Flare unit	A device used for the combustion of landfill gas thereby converting its methane content to carbon dioxide.

Gas wells	Wells installed during filling or retrofitted later within the waste area for the monitoring of and/or removal of landfill gas either actively through an extraction system or passively by venting.
Groundwater	Groundwater is that part of the subsurface water which is in the saturated zone.
Hydrogeology	The study of the interrelationships of the geology of soils and rocks with groundwater.
Indirect discharge	The introduction into groundwater of List I or II substances after percolation through the ground or subsoil.
Inert landfill	A landfill that accepts only inert waste that fulfils the criteria set out in the Agency's draft manual "Waste Acceptance".
Lagoon	A land area used to contain liquid, e.g.leachate collected from landfill.
Landfill	Waste disposal facility used for the deposit of waste on to or in to land.
Landfill gas (LFG)	All gases generated from the landfilled waste.
Leachate	Any liquid percolating through the deposited waste and emitted from or contained within a landfill as defined in Section 5(1) of the Waste Management Act.
Leachate Well	Well installed within the waste area for the monitoring and/or extraction of leachate as opposed to borehole, which is the term, used when located outside the waste deposition area.
List I/II substances	Substances referred to in the EU Directives on Dangerous Substances (76/464/EEC) and Groundwater (80/68/EC).
Lower explosive limit (LEL)	The lowest percentage concentration by volume of a mixture of flammable gas with air which will propagate a flame at 25^{o}C and atmospheric pressure.
Macroinvertebrate	Larger invertebrate animals visible to the eye. Usually defined as those that are retained by a net or sieve of mesh size 0.6mm.
Minimum reporting value	This is the lowest concentration of a substance that can be determined with a known degree of confidence. It is a matrix dependent and not necessarily equivalent to the Limit of Detection of the analytical system but is generally a multiple of that value which reflects the robustness and reproducibility of the test method as applied to the specific

	matrix. Also referred to as the limit of quantitation or practical reporting limit.
Noise Sensitive Location	(NSL) Any dwelling-house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.
Quarterly	At approximately three monthly intervals.
Receiving water	A body of water, flowing or otherwise, such as a stream, river, lake, estuary or sea, into which water or wastewater is discharged.
Restoration	Works carried out on a landfill site to allow planned afteruse.
Substrata	River bed or bottom on or in which invertebrates live.
Taxa	Named taxonomic groups. Usually family or species level in biotic indices.
Trigger level	A parameter value specified in the licence, the achievement or exceedance of which requires certain actions to be taken by the licensee.
Upper explosive limit (LEL)	The highest percentage concentration by volume of a mixture of flammable gas with air which will propagate a flame at 25^{o}C and atmospheric pressure.
Void space	Space available to deposit waste.

Water balance A calculation to estimate a volume of liquid generated. In the case of landfills, water balance normally refers to leachate generation volumes.

Table 6: Ammoniacal Nitrogen Concentrations at SW17, SW18 & SW21

Q1	04/01/12	11/01/12	18/01/12	26/01/12	01/02/12	08/02/12	15/02/12	22/02/12	29/02/12	07/03/12	15/03/12	21/03/12	28/03/12
SW21	1.58	1.8	2.31	2.2	2.97	3.42	3.18	3.46	6.65	4.78	11.09	4.27	6.23
SW18	0.43	0.98	1.16	0.99	1.12	1.56	1.74	2.78	2.51	1.41	5.09	1.98	3.06
SW17	0.06	0.06	0.09	0.09	0.16	0.06	0.06	0.06	0.08	0.06	0.04	0.1	0.04

Q2	04/04/12	11/04/12	19/04/12	25/04/12	02/05/12	09/05/12	17/05/12	23/05/12	30/05/12	08/06/12	13/06/12	21/06/12	28/06/12
SW21	4.19	7.94	3.46	1.11	0.75	1.75	2.48	4.98	1.82	38.72	1.86	0.89	0.82
SW18	3.15	4.94	2.31	1.62	0.4	0.7	0.67	2.24	1.75	0.33	0.77	0.29	0.34
SW17	0.04	0.05	0.12	0.11	0.13	0.04	0.04	0.04	0.09	0.19	0.04	0.04	0.16

Q3	04/07/12	11/07/12	19/07/12	25/7/12	01/08/12	08/08/12	15/08/12	22/08/12	05/09/12	12/09/12	19/09/12	26/09/12
SW21	1.11	1.1	0.96	0.83	3.56	4.63	3.26	5.3	6.27	9.23	9.1	1.21
SW18	0.5	0.5	0.48	0.6	2.37	2.92	0.61	3.5	4.39	6.49	7.45	0.26
SW17	0.1	0.05	0.03	0.05	0.03	0.09	0.15	0.04	0.05	0.05	0.05	0.16

Q4	03/10/12	10/10/12	17/10/12	24/10/12	31/10/12	14/11/12	12/12/12
SW21	4.39	5.35	1.44	2.72	2.1	3.53	3.92
SW18	1.48	3.51	0.4	1.07	1.07	3.35	1.25
SW17	0.05	0.12	0.07	0.06	0.17	0.07	0.15

NB: Ammoniacal Nitrogen as N mg/l

Table 7: Weekly results for conductivity measurements at SW17, SW18 & SW21

Q1	04/01/12	11/01/12	18/01/12	26/01/12	01/02/12	08/02/12	15/02/12	22/02/12	29/02/12	07/03/12	15/03/12	21/03/12	28/03/12
SW21	718	822	829	1,060	890	920	847	2,730	910	2,970	980	777	856
SW18	1,225	1,135	1,071	1,431	1,222	1,246	1,160	1,500	1,230	2,280	1,170	1034	1087
SW17	1,004	989	1,005	928	905	1226	1150	1,110	1,080	1,070	1,260	852	923

Q2	04/04/12	11/04/12	19/04/12	25/04/12	02/05/12	09/05/12	17/05/12	23/05/12	30/05/12	08/06/12	13/06/12	21/06/12	28/06/12
SW21	674	721	483	200	661	710	600	790	351	680	730	325	410
SW18	837	957	459	460	836	960	820	980	445	180	930	516	520
SW17	922	837	645	570	641	850	830	860	826	420	740	557	690

Q3	4/7/12	11/7/12	19/7/12	25/7/12	1/8/12	8/8/12	15/8/12	22/8/12	5/9/12	12/9/12	19/9/12	26/9/12
SW21	500	540	650	430	800	860	650	830	840	850	860	410
SW18	750	860	810	580	840	930	280	850	840	840	870	530
SW17	770	780	820	780	760	760	420	720	730	710	760	500

Q4	03/10/12	10/10/12	17/10/12	24/10/12	31/10/12	14/11/12	12/12/12
SW21	860	860	450	850	660	780	1,030
SW18	700	860	680	790	510	920	990
SW17	790	790	490	830	540	860	1,230

NB: Conductivity µS/cm

Appendix 1

Q1 - Dunsink Groundwater February 2012

Parameter	Unit	Threshold Value	BH3	BH3 Control Values	BH3 Trigger Values	BH4	BH4 Control Values	BH4 Trigger Values	BH16	BH16 Control Values	BH16 Trigger Values	BH27	BH27 Control Values	BH27 Trigger Values
pH	pH Units	**6.5 - 9.5** [1]	7.81	8	8.38	7.85	8.2	8.59	8.01	8.24	8.64	8.09	8.18	8.57
Conductivity	mS/cm	**1.875**	0.913	1.231	1.289	0.843	1.352	1.414	0.557	0.8379	0.8778	0.639	1.282	1.343
Temperature	°C	**-**	10.8	-	-	10.1	-	-	10.8	-	-	10	-	-
Ammoniacal Nitrogen	mg/l	**0.175**	<0.03	0.42	0.44	<0.03	0.31	0.33	0.05	0.21	0.22	0.05	1.89	1.98
Total Organic Carbon	mg/l	**N-A-C**[1]	3	6.3	6.6	3	6.3	6.6	6	6.3	6.3	4	5.25	5.5

Parameter	Unit	Threshold Value	BH31	BH31 Control Values	BH31 Trigger Values	BH32	BH32 Control Values	BH32 Trigger Values	BH33	BH33 Control Values	BH33 Trigger Values	BH34	BH34 Control Values	BH34 Trigger Values	BH35	BH35 Control Values	BH35 Trigger Values
pH	pH Units	**6.5 - 9.5**[1]	8.01	8.39	8.79	7.86	8.18	8.6	8.12	8.58	8.99	8.02	8.61	9.02	8.06	Control & Trigger values not yet determined	
Conductivity	mS/cm	**1.875**	0.528	0.791	0.828	0.505	1.227	1.286	0.419	0.852	0.892	0.479	0.998	1.045	0.536		
Temperature	°C	**-**	10.5	-	-	10.8	-	-	10	-	-	10	-	-	10.5		
Ammoniacal Nitrogen	mg/l	**0.175**	0.14	1.575	1.65	0.09	0.735	0.77	0.03	0.21	0.22	0.2	0.21	0.22	0.14		
Total Organic Carbon	mg/l	**N-A-C**[1]	4	8.4	8.8	4	5.25	6	4	5.25	5.5	5	6.3	6.6	3		

Threshold value = Groundwater regulations SI 9 of 2010

[1] = Where no threshold value exists results are compared to EPA I.G.V. from Table 3.1 of EPA document "Towards Setting Guideline Values for the protection of Groundwater in Ireland"

Shading & Bold = Value has exceeded threshold value

Shading = Value has exceeded the Control Value

Shading = Value has exceeded Trigger Value

Sampled on 15th February 2012

Analysis conducted by Jones Environmental Laboratory

Q2 - Dunsink Groundwater May 2012

Parameter	Unit	Threshold Value	BH3	BH3 Control Values	BH3 Trigger Values	BH4	BH4 Control Values	BH4 Trigger Values	BH16	BH16 Control Values	BH16 Trigger Values	BH27	BH27 Control Values	BH27 Trigger Values
pH	pH Units	**6.5 - 9.5** [1]	7.93	8	8.38	7.95	8.2	8.59	8.22	8.24	8.64	8.01	8.18	8.57
Conductivity	mS/cm	**1.875**	1.317	1.231	1.289	1.245	1.352	1.414	0.840	0.8379	0.8778	1.060	1.282	1.343
Temperature	°C	**-**	11.2	-	-	11	-	-	10.3	-	-	10.7	-	-
Ammoniacal Nitrogen	mg/l	**0.175**	0.05	0.42	0.44	<0.03	0.31	0.33	0.05	0.21	0.22	0.05	1.89	1.98
Total Organic Carbon	mg/l	**N-A-C**[1]	<2	6.3	6.6	<2	6.3	6.6	<2	6.3	6.3	<2	5.25	5.5

Parameter	Unit	Threshold Value	BH31	BH31 Control Values	BH31 Trigger Values	BH32	BH32 Control Values	BH32 Trigger Values	BH33	BH33 Control Values	BH33 Trigger Values	BH34	BH34 Control Values	BH34 Trigger Values	BH35	BH35 Control Values	BH35 Trigger Values
pH	pH Units	**6.5 - 9.5**[1]	8.13	8.39	8.79	8.22	8.18	8.6	8.11	8.58	8.99	Inaccessible	8.61	9.02	7.98	Control & Trigger values not yet determined	
Conductivity	mS/cm	**1.875**	0.719	0.791	0.828	0.726	1.227	1.286	0.679	0.852	0.892		0.998	1.045	0.778		
Temperature	°C	**-**	10.8	-	-	11	-	-	10	-	-		-	-	10.9		
Ammoniacal Nitrogen	mg/l	**0.175**	0.09	1.575	1.65	0.1	0.735	0.77	<0.03	0.21	0.22		0.21	0.22	0.13		
Total Organic Carbon	mg/l	**N-A-C**[1]	<2	8.4	8.8	<2	5.25	6	<2	5.25	5.5		6.3	6.6	<2		

Threshold value = Groundwater regulations SI 9 of 2010

[1] = Where no threshold value exists results are compared to EPA I.G.V. from Table 3.1 of EPA document "Towards Setting Guideline Values for the protection of Groundwater in Ireland"

Shading & Bold = Value has exceeded threshold value

Shading = Value has exceeded the Control Value

Shading = Value has exceeded Trigger Value

Sampled on 17th May 2012

Analysis conducted by Jones Environmental Laboratory

Dunsink Q3 2012 GW annual

Groundwater Results

PARAMETER	UNIT	Threshold Value	BH3	BH3 Control Values	BH3 Trigger Values	BH4	BH4 Control Values	BH4 Trigger Values	BH16	BH16 Control Values	BH16 Trigger Values	BH27	BH27 Control Value	BH27 Trigger Values	BH31	BH31 Control Values	BH31 Trigger Values	BH32	BH32 Control Values	BH32 Trigger Values	BH33	BH33 Control Values	BH33 Trigger Values	BH34a	BH34a Control Values	BH34a Trigger Values	BH34b	BH35
pH Value	**units**	**6.5 - 9.5**	7.97	8	8.38	7.93	8.2	8.59	8.07	8.24	8.64	7.99	8.18	8.57	7.98	8.39	8.79	8.12	8.18	8.6	8.04	8.58	8.99	7.87	8.61	9.02	7.95	7.97
Conductivity	**mS/cm**	**1.875**	1.16	1.231	1.289	1.045	1.352	1.414	0.637	0.838	0.878	0.947	1.282	1.343	0.684	0.791	0.828	0.667	1.227	1.286	0.625	0.852	0.892	0.774	0.998	1.045	0.724	0.716
Ammonical Nitrogen as NH4-N	**N mg/l**	**0.175**	<0.03	0.42	0.44	0.05	0.315	0.33	0.06	0.21	0.22	0.03	1.89	1.98	0.15	1.575	1.65	0.09	0.735	0.77	0.050	0.21	0.22	0.12	0.21	0.22	0.09	0.17
Dissolved Oxygen (O2)	**O2 mg/l**	**N-A-C**	6	-	-	6	-	-	8	-	-	8	-	-	7	-	-	6	-	-	7	-	-	6	-	-	6	8
Chloride (Cl)	**Cl mg/l**	**187.5**	95.8	76.65	80.3	87	91.35	95.7	24	40.95	42.9	41.6	75.6	79.2	23.6	32.55	34.1	24.3	26.25	27.5	17	28.35	29.7	15.1	32.55	34.1	23.7	24
Potassium (K)	**K mg/l**	**5** [1]	3.5	5.25	5.5	4	7.77	8.14	1.6	3.78	3.96	1.9	3.36	3.52	1.6	4.41	4.62	2.8	6.72	7.04	1.7	5.25	5.5	1.7	3.99	4.2	1.9	1.5
Sodium (Na)	**Na mg/l**	**150**	53	51.24	53.68	45.2	37.8	39.6	15.2	21	22	26.4	47.25	49.5	15.2	25.2	26.4	16.3	21.31	22.33	15.4	82.95	86.9	20.8	64.58	67.7	24.0	21.9
Fluoride (F)	**F mg/l**	**1** [1]	<0.3	0.315	0.33	<0.3	0.315	0.33	0.5	0.74	0.77	0.6	0.74	0.77	<0.3	0.945	0.99	<0.3	0.315	0.33	1.1	0.945	0.99	<0.3	0.32	0.3	0.3	1.5
Total Organic Carbon	**C mg/l**	**N-A-C**	7	6.3	6.6	6	6.3	6.6	8	6.3	6.6	7	5.25	5.5	8	8.4	8.8	9	5.25	6	8	5.25	5.5	9	6.3	6.6	9	5
Total Oxidised Nitrogen (water)	**N mg/l**	**N-A-C**	1.8	-	-	0.7	-	-	0.2	-	-	0.5	-	-	0.3	-	-	0.2	-	-	0.2	-	-	0.3	-	-	0.2	0.2
Calcium (Ca)	**Ca mg/l**	**200** [1]	156.4	-	-	151.8	-	-	81.1	-	-	117.8	-	-	108.8	-	-	94.2	-	-	80.4	-	-	117.1	-	-	108.7	83.2
Cadmium (Cd)	**Cd mg/l**	**0.003**	<0.0005	-	-	<0.0005	-	-	<0.0005	-	-	<0.0005	-	-	<0.0005	-	-	<0.0005	-	-	<0.0005	-	-	<0.0005	-	-	<0.0005	<0.0005
Chromium (Cr)	**Cr mg/l**	**0.037**	<0.0015	-	-	<0.0015	-	-	<0.0015	-	-	<0.0015	-	-	<0.0015	-	-	<0.0015	-	-	<0.0015	-	-	<0.0015	-	-	<0.0015	<0.0015
Copper (Cu)	**Cu mg/l**	**1.5**	<0.007	-	-	<0.007	-	-	<0.007	-	-	<0.007	-	-	<0.007	-	-	<0.007	-	-	<0.007	-	-	<0.007	-	-	<0.007	<0.007
Total Cyanide (Cn)*	**Cn mg/l**	**0.037**	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	0.01	-	-	<0.01	<0.01
Iron (Fe)	**Fe mg/l**	**0.2** [1]	<0.02#	0.018	0.019	<0.02#	0.019	0.02	<0.02#	0.03	0.028	<0.02#	0.03	0.032	<0.02#	0.0441	0.0462	<0.02#	0.01365	0.0143	<0.02#	0.0147	0.0154	<0.02#	0.0304	0.0319	<0.02#	<0.02#
Lead (Pb)	**Pb mg/l**	**0.018**	<0.005	-	-	<0.005	-	-	<0.005	-	-	<0.005	-	-	<0.005	-	-	<0.005	-	-	<0.005	-	-	<0.005	-	-	<0.005	<0.005
Magnesium (Mg)	**Mg mg/l**	**50** [1]	16	22.73	23.82	9.8	19.08	19.99	25.5	29.23	30.62	37	51.07	53.5	13.5	18.76	19.66	19	25.074	26.268	22.4	21.95	23.001	15.8	23.247	24.354	12.3	28
Manganese (Mn)	**Mn mg/l**	**0.05** [1]	0.097	0.151	0.158	0.053	0.0294	0.0308	0.053	0.169	0.177	0.059	0.077	0.08	0.644	0.9135	0.957	0.068	0.0672	0.0704	<0.002	0.0483	0.0506	0.549	0.391	0.4103	0.367	0.053
Nickel (Ni)	**Ni mg/l**	**0.015**	0.004	0.0116	0.0121	<0.002	0.042	0.044	<0.002	0.0021	0.0022	<0.002	0.063	0.066	<0.002	0.0105	0.011	<0.002	0.0105	0.011	<0.002	0.021	0.022	0.004	0.00525	0.0055	0.012	<0.002
Mercury (Hg)	**Hg mg/l**	**0.00075**	<0.001*	-	-	<0.001*	-	-	<0.001*	-	-	<0.001*	-	-	<0.001*	-	-	<0.001*	-	-	<0.001*	-	-	<0.001*	-	-	<0.001*	<0.001*
Residue on Evaporation	**mg/l**	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (soluble) (SO4)	**SO4 mg/l**	**187.5**	147.7	-	-	118.51	-	-	44.2	-	-	66.85	-	-	44.36	-	-	43.26	-	-	23.82	-	-	41.06	-	-	43.37	58.59
Zinc (Zn)	**Zn mg/l**	**0.1** [1]	0.005	-	-	0.016	-	-	0.005	-	-	<0.003	-	-	0.007	-	-	<0.003	-	-	<0.003	-	-	0.004	-	-	0.008	<0.003
Boron (B)	**B mg/l**	**0.75**	0.028	-	-	0.03	-	-	0.061	-	-	0.073	-	-	0.037	-	-	0.039	-	-	0.029	-	-	0.042	-	-	0.034	0.081
Alkalinity (as CaCO3)	**CaCO3 mg/l**	**N-A-C**	226	-	-	210	-	-	228	-	-	290	-	-	240	-	-	234	-	-	244	-	-	284	-	-	248	244
Ortho Phosphate	**P04 mg/l**	**-**	<0.06	-	-	<0.06	-	-	<0.06	-	-	<0.06	-	-	<0.06	-	-	0.09	-	-	<0.06	-	-	<0.06	-	-	<0.06	<0.06

Threshold value = Groundwater regulations SI 9 of 2010

[1] = Where no threshold value exists results are compared to EPA I.G.V. from Table 3.1 of EPA document "Towards Setting Guideline Values for the protection of Groundwater in Ireland"

Shading = Value has exceeded threshold value

Shading = Value has exceeded the trigger/control value

* Laboratory level of Detection is above threshold value

Laboratory level of Detection is in excess of trigger/control value

Sampling was undertaken on the 14th September 2011.

N-A-C= No abnormal change

Analysis conducted by Jones Laboratories, UK

J102-01

Dunsink Landfill Annual Groundwater Quality Results, August 2012
Volatile Organic Compounds

Compound	Unit	LOD	BH3	BH4	BH31	BH32	BH33	BH34b
Dichlorodifluoromethane	µg/l	<2	<2	<2	<2	<2	<2	<2
Chloromethane	µg/l	<3	<3	<3	<3	<3	<3	<3
Vinyl chloride	µg/l	<2	<2	<2	<2	<2	<2	<2
Bromomethane	µg/l	<1	<1	<1	<1	<1	<1	<1
Chloroethane	µg/l	<3	<3	<3	<3	<3	<3	<3
Trichlorofluoromethane	µg/l	<3	<3	<3	<3	<3	<3	<3
1,1-Dichloroethene	µg/l	<3	<3	<3	<3	<3	<3	<3
Dichloromethane	µg/l	<3	<3	<3	<3	<3	<3	<3
Methyl tertiary butyl ether (MTBE)	µg/l	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	µg/l	<3	<3	<3	<3	<3	<3	<3
1,1-Dichloroethane	µg/l	<3	<3	<3	<3	<3	<3	<3
cis-1,2-Dichloroethene	µg/l	<3	<3	<3	<3	<3	<3	<3
2,2-Dichloropropane	µg/l	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	µg/l	<2	<2	<2	<2	<2	<2	<2
Chloroform	µg/l	<2	<2	<2	<2	<2	<2	<2
1,1,1-Trichloroethane	µg/l	<2	<2	<2	<2	<2	<2	<2
1,1-Dichloropropene	µg/l	<3	<3	<3	<3	<3	<3	<3
Carbontetrachloride	µg/l	<2	<2	<2	<2	<2	<2	<2
1,2-Dichloroethane	µg/l	<2	<2	<2	<2	<2	<2	<2
Benzene	µg/l	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/l	<3	<3	<3	<3	<3	<3	<3
1,2-Dichloropropane	µg/l	<2	<2	<2	<2	<2	<2	<2
Dibromomethane	µg/l	<3	<3	<3	<3	<3	<3	<3
Bromodichloromethane	µg/l	<2	<2	<2	<2	<2	<2	<2
cis-1,3-Dichloropropene	µg/l	<2	<2	<2	<2	<2	<2	<2
Toluene	µg/l	<2	<2	<2	<2	<2	<2	<2
trans-1,3-Dichloropropene	µg/l	<2	<2	<2	<2	<2	<2	<2
1,1,2-Trichloroethane	µg/l	<2	<2	<2	<2	<2	<2	<2
1,3-Dichloropropane	µg/l	<2	<2	<2	<2	<2	<2	<2
Tetrachloroethene	µg/l	<3	<3	<3	<3	<3	<3	<3
Dibromochloromethane	µg/l	<2	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane	µg/l	<2	<2	<2	<2	<2	<2	<2
Chlorobenzene	µg/l	<2	<2	<2	<2	<2	<2	<2
1,1,1,2-Tetrachloroethane	µg/l	<2	<2	<2	<2	<2	<2	<2
Ethylbenzene	µg/l	<2	<2	<2	<2	<2	<2	<2
m,p-Xylene	µg/l	<3	<3	<3	<3	<3	<3	<3
o-Xylene	µg/l	<2	<2	<2	<2	<2	<2	<2
Styrene	µg/l	<2	<2	<2	<2	<2	<2	<2
Bromoform	µg/l	<2	<2	<2	<2	<2	<2	<2
Isopropylbenzene	µg/l	<3	<3	<3	<3	<3	<3	<3
1,1,2,2-Tetrachloroethane	µg/l	<4	<4	<4	<4	<4	<4	<4
1,2,3-Trichloropropane	µg/l	<3	<3	<3	<3	<3	<3	<3
Bromobenzene	µg/l	<2	<2	<2	<2	<2	<2	<2
Propylbenzene	µg/l	<3	<3	<3	<3	<3	<3	<3
2-Chlorotoluene	µg/l	<3	<3	<3	<3	<3	<3	<3
1,3,5-Trimethylbenzene	µg/l	<3	<3	<3	<3	<3	<3	<3
4-Chlorotoluene	µg/l	<3	<3	<3	<3	<3	<3	<3
tert-Butylbenzene	µg/l	<3	<3	<3	<3	<3	<3	<3
1,2,4-Trimethylbenzene	µg/l	<3	<3	<3	<3	<3	<3	<3
sec-Butylbenzene	µg/l	<3	<3	<3	<3	<3	<3	<3
4-iso-Propyltoluene	µg/l	<3	<3	<3	<3	<3	<3	<3
1,3-Dichlorobenzene	µg/l	<3	<3	<3	<3	<3	<3	<3
1,4-Dichlorobenzene	µg/l	<3	<3	<3	<3	<3	<3	<3
n-Butylbenzene	µg/l	<3	<3	<3	<3	<3	<3	<3
1,2-Dichlorobenzene	µg/l	<3	<3	<3	<3	<3	<3	<3
1,2-Dibromo-3-chloropropane	µg/l	<2	<2	<2	<2	<2	<2	<2
1,2,4-Trichlorobenzene	µg/l	<3	<3	<3	<3	<3	<3	<3
Hexachlorobutadiene	µg/l	<3	<3	<3	<3	<3	<3	<3
Naphthalene	µg/l	<2	<2	<2	<2	<2	<2	<2
1,2,3-Trichlorobenzene	µg/l	<3	<3	<3	<3	<3	<3	<3

Dunsink Landfill Annual Groundwater Quality Results, August 2012

Semi-Volatile Organic Compounds

Compound	Unit	LOD	BH3	BH4	BH31	BH32	BH33	BH34b
1,2,4-Trichlorobenzene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
1,2-Dichlorobenzene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
1,3-Dichlorobenzene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
1,4-Dichlorobenzene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
2,4,5-Trichlorophenol (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
2,4,6-Trichlorophenol (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
2,4-Dichlorophenol (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
2,4-Dinitrotoluene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
2,6-Dinitrotoluene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
2-Chloronaphthalene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
2-Chlorophenol (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
2-Methylphenol (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
2-Nitroaniline (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
2-Nitrophenol (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
3-Nitroaniline (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
4-Bromophenylphenylether (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
4-Chloro-3-methylphenol (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
4-Chloroaniline (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
4-Chlorophenylphenylether (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
4-Methylphenol (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
4-Nitrophenol (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
4-Nitroaniline (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Azobenzene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Acenaphthylene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Acenaphthene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Anthracene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
bis(2-Chloroethyl)ether (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
bis(2-Chloroethoxy)methane (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
bis(2-Ethylhexyl) phthalate (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Benzo(a)anthracene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Butylbenzyl phthalate (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Benzo(b)fluoranthene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Benzo(k)fluoranthene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Benzo(a)pyrene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Carbazole (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Chrysene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Dibenzofuran (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
n-Dibutyl phthalate (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Diethyl phthalate (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Dibenzo(a,h)anthracene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Dimethyl phthalate (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
n-Dioctyl phthalate (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Fluoranthene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Fluorene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Hexachlorobenzene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Hexachlorobutadiene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Pentachlorophenol (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Phenol (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
n-Nitroso-n-dipropylamine (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Hexachloroethane (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Nitrobenzene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Naphthalene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Isophorone (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Hexachlorocyclopentadiene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Phenanthrene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10
Pyrene (aq)	µg/l	<10	<10	<10	<10	<10	<10	<10

Dunsink Landfill, Annual Groundwater Quality Results August 2012 - Pesticides

Parameter	BH3	BH4	BH31	BH32	BH33	BH34b
Organochlorine Pesticides						
Aldrin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Alpha-BHC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Beta-BHC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dieldrin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulphan I	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulphan II	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulphan Sulphate	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Gamma-BHC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor Epoxide	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
p,p'-DDE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
p,p'-DDT	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
p,p'-TDE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total methoxychlor	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Organophosphorous Pesticides	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Azinphos methyl	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Diazinon	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dichlorvos	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Disulfoton	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ethion	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ethyl Parathion	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fenitrothion	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Malathion	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Methyl Parathion	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mervinphos	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Dunsink Landfill - Groundwater Quality Results Q4 2012

Parameter	Unit	Threshold Value	BH3	BH3 Control Values	BH3 Trigger Values	BH4	BH4 Control Values	BH4 Trigger Values	BH16	BH16 Control Values	BH16 Trigger Values	BH27	BH27 Control Values	BH27 Trigger Values
pH	pH Units	**6.5 - 9.5** [1]	7.2	8	8.38	7.21	8.2	8.59	7.45	8.24	8.64	7.12	8.18	8.57
Conductivity	mS/cm	**1.875**	1.056	1.231	1.289	0.866	1.352	1.414	0.693	0.8379	0.8778	0.980	1.282	1.343
Temperature	°C	**-**	10.6	-	-	10.1	-	-	9.8	-	-	11	-	-
Ammoniacal Nitrogen	mg/l	**0.175**	0.02	0.42	0.44	0.06	0.31	0.33	0.06	0.21	0.22	0.07	1.89	1.98
Total Organic Carbon	mg/l	**N-A-C**[1]	10	**6.3**	**6.6**	12	**6.3**	**6.6**	69	**6.3**	6.3	4	5.25	5.5

Parameter	Unit	Threshold Value	BH31	BH31 Control Values	BH31 Trigger Values	BH32	BH32 Control Values	BH32 Trigger Values	BH33	BH33 Control Values	BH33 Trigger Values	BH34	BH34 Control Values	BH34 Trigger Values	BH35	BH35 Control Values	BH35 Trigger Values
pH	pH Units	**6.5 - 9.5**[1]	7.22	8.39	8.79	7.27	8.18	8.6	7.42	8.58	8.99	7.29	8.61	9.02	7.38	Control & Trigger values not yet determined	
Conductivity	mS/cm	**1.875**	0.699	0.791	0.828	0.678	1.227	1.286	0.635	0.852	0.892	0.784	0.998	1.045	0.749		
Temperature	°C	**-**	11.5	-	-	11	-	-	9.7	-	-	9	-	-	10.6		
Ammoniacal Nitrogen	mg/l	**0.175**	0.12	1.575	1.65	0.1	0.735	0.77	0.02	0.21	0.22	<0.01	0.21	0.22	0.2		
Total Organic Carbon	mg/l	**N-A-C**[1]	6	8.4	8.8	7	**5.25**	**6**	11	**5.25**	**5.5**	9	**6.3**	**6.6**	6		

Threshold value = Groundwater regulations SI 9 of 2010

[1] = Where no threshold value exists results are compared to EPA I.G.V. from Table 3.1 of EPA document "Towards Setting Guideline Values for the protection of Groundwater in Ireland"

Shading & Bold = Value has exceeded threshold value

Shading = Value has exceeded the Control Value

Shading = Value has exceeded Trigger Value

Sampled on 12th December 2012

Analysis conducted by Jones Environmental Laboratory

Appendix 2

Q1 - Dunsink Surface Water February 2012

Parameter	Unit	SI 272 of 2009	Salmonid Regs	SW2	SW7	SW9	SW10	SW11	SW17	SW18	WWSW2
pH	pH Units	6-9 (note 1)	≥6≤9	8.04	8.12		8.05	8	8.07	8.12	8.14
Conductivity	mS/cm	1 (note 2)	-	0.986	**1.267**		**1.105**	0.730	**1.014**	**1.052**	0.758
Temperature	°C	-	<10°C*	7.8	7.3	Dry	7.7	7.0	8.1	10	8.5
Dissolved Oxygen	%	80-120% saturation	50%>9	11.0	11.0		10.0	11.0	11.0	8.0	11.0
Ammoniacal Nitrogen#	mg/l	-	<1	0.05	0.03		0.05	0.04	0.06	1.052	0.13
BOD	mg/l	<=1.5 mean (note 3)	5	<1	1		1	<1	<1	**3**	<1
Total Suspended Solids	mg/l	-	25	41	31		<10	102	54	24	151

SI 272 of 2009 = European Communities Environmental Objectives (Surface Water) Regulations 2009
Bold = Value has exceeded Surface Water Regulations
Salmonid Regs= European Communities (Quality of Salmonid Waters) Regulation , SI 293 of 1988.
Shading = Value has exceeded Salmonid Regulations
# Standard for Ionised Ammonia = <1, Ionised Ammonia= total ammonium x 1.28-Results stated should be converted before being compared to the standard.
*=Second Schedule of Salmonid Regulations states " temperature must not exceed 10 degrees celsius during the period from 1 November to 30 April where species which need cold water for reproduction are present
Note 1 : Hard water - >100mg/l CACO3
Note 2 : In the absence of a standard for conductivity under SI 272 of 2009 or the Salmonid Regulations SI 293 of 1988, a threshold value from SI 294 of 1989 (Quality of SW Intended for Abstraction of Drinking Water) has been used
Note 3 : For waters achieving good status

Sampled on 15th February 2012

Analysis conducted by Jones Environmental Laboratory

Q2 - Dunsink Surface Water May 2012

Parameter	Unit	SI 272 of 2009	Salmonid Regs	SW2	SW7	SW9	SW10	SW11	SW17	SW18	SW21	WWSW2
pH	pH Units	6-9 (note 1)	≥6≤9	7.97	8.37	7.88	8.13	8.02	8.18	8.45	8.51	8.17
Conductivity	mS/cm	1 (note 2)	-	0.865	0.728	**1.006**	0.861	**1.013**	0.877	**1.112**	0.683	0.868
Temperature	°C	-	<10°C*	11.1	12.3	11.9	11.6	8.9	10.8	11.1	10.5	10.6
Dissolved Oxygen	%	80-120% saturation	50%>9	10.0	11.0	**16**	9.0	8.0	9.0	7.0	5.0	9.0
Ammoniacal Nitrogen#	mg/l	-	<1	0.03	0.05	0.34	0.06	0.05	0.04	0.67	2.48	0.05
BOD	mg/l	<=1.5 mean (note 3)	5	<1	1	**2**	<1	<1	<1	1	<1	<1
Total Suspended Solids	mg/l	-	25	<10	<10	26	<10	13	<10	<10	<10	<10

SI 272 of 2009 = European Communities Environmental Objectives (Surface Water) Regulations 2009
Bold = Value has exceeded Surface Water Regulations
Salmonid Regs= European Communities (Quality of Salmonid Waters) Regulation , SI 293 of 1988.
Shading = Value has exceeded Salmonid Regulations
# Standard for Ionised Ammonia = <1, Ionised Ammonia= total ammonium x 1.28-Results stated should be converted before being compared to the standard.
*=Second Schedule of Salmonid Regulations states " temperature must not exceed 10 degrees celsius during the period from 1 November to 30 April where species which need cold water for reproduction are present
Note 1 : Hard water - >100mg/l CACO3
Note 2 : In the absence of a standard for conductivity under SI 272 of 2009 or the Salmonid Regulations SI 293 of 1988, a threshold value from SI 294 of 1989 (Quality of SW Intended for Abstraction of Drinking Water) has been used
Note 3 : For waters achieving good status

Sampled on 17th May 2012

Analysis conducted by Jones Environmental Laboratory

Dunsink Landfill Annual Surface Water Quality Results, 15th August 2012

Surface Water Results													
PARAMETER	**UNIT**	**SI 272 of 2009**	**Salmonid**	**SW21**	**SW18**	**SW19**	**SW7**	**SW10**	**SW2**	**SW9**	**SW11**	**WWSW2**	**SW17**
pH Value	units	6-9 (note 1)	6-9	8.55	6.95	7.17	8.1	8.42	8.24	7.8	8.72	8.25	8.47
Conductivity	mS/cm	1	-	0.53	0.261	0.479	0.508	0.592	0.269	0.334	0.772	0.375	0.396
Ammonical Nitrogen as N	N mg/l	0.14	1	**3.26**	**0.61**	**1.46**	0.06	0.05	**0.23**	0.05	0.04	**0.22**	**0.15**
Dissolved Oxygen (O2)*	O2 mg/l	80-120% saturation	50% >9	<1	4	<1	7	5	4	3	4	3	<1
Chloride (Cl)	Cl mg/l	-	-	16.5	12.5	18.4	29.3	29.9	12.1	17.3	32.6	11.2	12.8
Potassium (K)	K mg/l	-	-	4	1.8	3	4.4	4	3.8	7	6.4	1.9	2.4
Sodium (Na)	Na mg/l	-	-	10.9	9.7	13.1	21.2	21.2	6.3	6.1	17.2	8	9.4
COD	02 mg/l	-	-	16	10	26	11	10	15	27	23	10	13
BOD	02 mg/l	<=1.5 mean (note 2	5	1	1	**11**	<1	<1	<1	1	1	<1	<1
Total Oxidised Nitrogen (water)	N mg/l	-	-	0.5	1.2	1	0.3	0.6	1.2	0.5	0.4	1.5	1.4
Total Suspended Solids	mg/l	-	25	<10	<10	<10	<10	<10	97	<10	<10	<10	<10
Calcium (Ca)	Ca mg/l	-	-	69.8	33.3	65.2	58.6	79.3	38.3	47	119.8	51.3	57.6
Cadmium (Cd)	Cd mg/l	0.15	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium (Cr)	Cr mg/l	0.0047	-	<0.0015	<0.0015	<0.0015	0.0021	0.0027	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
Copper (Cu)	Cu mg/l	0.03 (Note 3)	-	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.01	<0.007	<0.007	<0.007
Iron (Fe)	Fe mg/l	-	-	0.03	<0.02	<0.02	<0.02	<0.02	0.102	0.027	0.029	<0.02	<0.02
Lead (Pb)	Pb mg/l	0.0072	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium (Mg)	Mg mg/l	-	-	5.9	2.6	5.5	9.4	9.6	2.7	3.8	10.3	3	3.6
Manganese (Mn)	Mn mg/l	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Nickel (Ni)	Ni mg/l	0.02	-	0.008	<0.002	0.003	0.003	0.003	<0.002	<0.002	0.002	<0.002	<0.002
Mercury (Hg)	Hg mg/l	0.00005	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sulphate (soluble) (SO4)	SO4 mg/l	-	-	71.58	28.05	65.64	99.85	112.69	39.78	62.82	91.44	51.21	58.5
Zinc (Zn)	Zn mg/l	0.1	-	0.014	0.034	0.019	0.004	0.004	<0.003	<0.003	<0.003	0.006	0.006
Alkalinity (as CaCO3)	CaCO3 mg/l	N-A-C	-	198	92	194	120	164	102	88	314	132	144
Boron (B)	B mg/l	-	-	0.015	<0.012	0.016	0.03	0.033	0.023	0.033	0.061	0.02	0.02
ortho - phosphate	PO4 mg/l	-	-	0.13	0.12	0.13	<0.06	<0.06	0.13	0.25	0.27	0.1	0.11

Legend:
SI 272 of 2009 = European Communities Environmental Objectives (Surface Water) Regulations 2009
Bold = Value has exceeded Surface water Regulations
Salmonid Regs= European Communities (Quality of Salmonid Waters) Regulation, 1988
Shading = Value has exceeded Salmonid Water Quality Standard
Sampling was undertaken on 15th August 2012
Note 1 : Hard water - >100mg/l CACO3
Note 2 : For waters achieving good status
Note 3 : The standard of 0.005mg/l applies where hardness <100mg/l CACO3; 0.03mg/l applies where hardness >100mg/l CACO3
N-A-C= No abnormal change
* DO values are laboratory results

Marron Environmental
J102-01

Analysis conducted by Jones Laboratories, UK

Dunsink Landfill - Surface Water Quality Results, Q4 2012

Parameter	Unit	SI 272 of 2009	Salmonid Regs	SW21	SW18	SW7	SW10	SW9	SW11	SW2	WWSW2	SW17
pH	pH Units	6-9 (note 1)	≥6≤9	7.35	7.76	7.95	7.83	7.2	7.86	7.79	7.82	7.77
Conductivity	mS/cm	1 (note 2)	-	**1.030**	0.990	**1.33**	**1.280**	0.950	**1.000**	**1.19**	0.86	**1.23**
Temperature	°C	-	<10°C*	10.9	6.4	2.6	5.4	7.1	3.5	5.5	8.4	6.7
Dissolved Oxygen	%	80-120% saturation	50%>9	-	**47.0**	**-**	80.3	94.6	**29.0**	**77.5**	87.5	88.0
Ammoniacal Nitrogen#	mg/l	0.14	<1	**3.92**	**1.25**	**0.17**	**0.15**	**0.22**	0.08	0.08	0.11	**0.15**
BOD	mg/l	<=1.5 mean (note 3)	5	1	1	<1	<1	<1	1	<1	<1	1
Total Suspended Solids	mg/l	-	25	<10	<10	<10	<10	<10	<10	<10	<10	<10

SI 272 of 2009 = European Communities Environmental Objectives (Surface Water) Regulations 2009
Bold = Value has exceeded Surface Water Regulations
Salmonid Regs= European Communities (Quality of Salmonid Waters) Regulation , SI 293 of 1988.
Shading = Value has exceeded Salmonid Regulations
# Standard for Ionised Ammonia = <1, Ionised Ammonia= total ammonium x 1.28-Results stated should be converted before being compared to the standard.
*=Second Schedule of Salmonid Regulations states " temperature must not exceed 10 degrees celsius during the period from 1 November to 30 April where species which need cold water for reproduction are present
Note 1 : Hard water - >100mg/l CACO3
Note 2 : In the absence of a standard for conductivity under SI 272 of 2009 or the Salmonid Regulations SI 293 of 1988, a threshold value from SI 294 of 1989 (Quality of SW Intended for Abstraction of Drinking Water) has been used
Note 3 : For waters achieving good status

Sampled on 12th December 2012

Analysis conducted by Jones Environmental Laboratory

Q1 - Dunsink Leachate Results February 2012

Parameter	Units	Leachate Sump	Lagoon
		15/02/2012	15/02/2012
pH	pH units	8.22	8.42
Conductivity	mS/cm	2.626	1.434
Temperature	^{o}C	12	12
Ammoniacal Nitrogen#	mg/l	108.01	1.56
Dissolved Methane	mg/l	0.497	<0.001

Sampled on 15th February 2012

Analysis conducted by Jones Environmental Laboratory

Q2 - Dunsink Leachate Results May 2012

Parameter	Units	Leachate Sump	Lagoon
		17/05/2012	17/05/2012
pH	pH units	7.94	8.57
Conductivity	mS/cm	3.479	1.654
Temperature	^{o}C	12	15.6
Ammoniacal Nitrogen#	mg/l	108.27	0.95
Dissolved Methane	mg/l	1.557	0.005

Sampled on 17th May 2012

Analysis conducted by Jones Environmental Laboratory

Dunsink Landfill Annual Leachate Results, August 2012 Q3 2011 Leachate

Leachate Monitoring			
PARAMETER	**UNIT**	**Lagoon**	**Leachate Sump**
pH Value	units	8.61	8.38
Conductivity	mS/cm	2.373	3.746
Ammonical Nitrogen as NH4-N	N mg/l	85.56	171.96
Dissolved Methane	CH4 mg/l	0.031	2.754
Chloride (Cl)	Cl mg/l	291.8	382.4
Potassium (K)	K mg/l	89.8	152.3
Sodium (Na)	Na mg/l	181.3	294
COD	02 mg/l	156	126
BOD	02 mg/l	27	14
Total Oxidised Nitrogen (water)	N mg/l	1.6	0.5
Calcium (Ca)	Ca mg/l	49.7	96.8
Cadmium (Cd)	Cd mg/l	<0.0005	<0.0005
Chromium (Cr)	Cr mg/l	<0.0015	<0.0015
Copper (Cu)	Cu mg/l	<0.007	<0.007
Fluoride (F)	F mg/l	<0.3	<0.3
Iron (Fe)	Fe mg/l	<0.02	0.077
Lead (Pb)	Pb mg/l	<0.005	<0.005
Magnesium (Mg)	Mg mg/l	39.2	43.9
Manganese (Mn)	Mn mg/l	<0.002	0.877
Nickel (Ni)	Ni mg/l	0.021	0.027
Mercury (Hg)	Hg mg/l	<0.001	<0.001
Sulphate (soluble) (SO4)	SO4 mg/l	73.63	78.88
Zinc (Zn)	Zn mg/l	<0.003	0.004
Boron (B)	B mg/l	0.863	1.149
ortho-phosphate	PO4 mg/l	<0.06	<0.06

Analysis conducted by Jones Laboratories, UK

Marron Environmental

J102-01

Dunsink Landfill - Leachate Quality Results, Q4 2012

Parameter	Units	Leachate Sump	Lagoon
		17/05/2012	17/05/2012
pH	pH units	6.92	8.31
Conductivity	mS/cm	3.030	1.25
Temperature	°C	12	4.7
Ammoniacal Nitrogen#	mg/l	131.66	0.31
Dissolved Methane	mg/l	2.066	<0.001

Sampled on 12th December 2012

Analysis conducted by Jones Environmental Laboratory

Appendix 3

Environmental Protection Agency

Guidance to completing the PRTR workbook

AER Returns Workbook

Version 1.1.15

REFERENCE YEAR	2012

1. FACILITY IDENTIFICATION

Parent Company Name	Fingal County Council
Facility Name	Dunsink Landfill aka Dunsink Civic Amenity
PRTR Identification Number	W0127
Licence Number	W0127-01

Waste or IPPC Classes of Activity

No.	class_name
4.4	Recycling or reclamation of other inorganic materials.
3.4	Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons.
4.11	Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule.
4.13	Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.
4.2	Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).
4.3	Recycling or reclamation of metals and metal compounds.
4.9	Use of any waste principally as a fuel or other means to generate energy.

Address 1	Dunsink Lane
Address 2	Finglas
Address 3	County Dublin
Address 4	
	Dublin
Country	Ireland
Coordinates of Location	-6.33899 53.3903
River Basin District	IEEA
NACE Code	3832
Main Economic Activity	Recovery of sorted materials
AER Returns Contact Name	Alain Kerveillant
AER Returns Contact Email Address	alain.kerveillant@fingalcoco.ie
AER Returns Contact Position	Assistant Scientist Waste Management Division Fingal Co Co
AER Returns Contact Telephone Number	01-8708461
AER Returns Contact Mobile Phone Number	087-9915832
AER Returns Contact Fax Number	01-8905649
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	0
User Feedback/Comments	
Web Address	

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
50.1	General
50.1	General

3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)

Is it applicable?	
Have you been granted an exemption ?	
If applicable which activity class applies (as per Schedule 2 of the regulations) ?	
Is the reduction scheme compliance route being used ?	

4. WASTE IMPORTED/ACCEPTED ONTO SITE Guidance on waste imported/accepted onto site

Do you import/accept waste onto your site for on-site treatment (either recovery or disposal activities) ?	

This question is only applicable if you are an IPPC or Quarry site

4.1 RELEASES TO AIR Link to previous years emissions data | PRTR# : W0127 | Facility Name : Dunsink Landfill aka Dunsink Civic Amenity | Filename : Copy of W0127_2012 PRTR2.xls | Return Year : 2012 | 28/03/2013 01:05

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs				
POLLUTANT		METHOD			QUANTITY				
			Method Used		Flare	Engine			
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	Emission Point 2	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
01	**Methane (CH4)**	c	OTH	Total methane estimated generated minus flared/utilised	715.81	18772.02	894588.87	0.0	875101.04
03	Carbon dioxide (CO2)	c	OTH	GAS SIM data from RPS	59299.0	1555093.0	7577387.0	0.0	5962995.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (As required in your Licence)

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

Additional Data Requested from Landfill operators

For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their Net methane (CH4) emission to the environment under T(total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill: Dunsink Landfill aka Dunsink Civic Amenity

Please enter summary data on the quantities of methane flared and / or utilised	**T (Total) kg/Year**	**M/C/E**	**Method Used**		**Facility Total Capacity m3 per hour**	
			Method Code	**Designation or Description**		
Total estimated methane generation (as per site model)	1849492.9	C	other	GAS SIM data from RPS	N/A	
Methane flared	35075.0	M	other	Data provided by Bioverda	2500.0	(Total Flaring Capacity)
Methane utilised in engine/s	919829.0	M	other	Data provided by Bioverda	0.0	(Total Utilising Capacity)
Net methane emission (as reported in Section A above)	894588.9	C	C	Total generated - flared - uti	N/A	

4.2 RELEASES TO WATERS

Link to previous years emissions data

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

Data on ambient monitoring of storm/surface water or groundwater, conducted as part of your licence requirements, should NOT be submitted under AER / PRTR Reporting as this only concerns Releases from your facility

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.3 RELEASES TO WASTEWATER OR SEWER

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.4 RELEASES TO LAND

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

RELEASES TO LAND					Please enter all quantities in this section in KGs		
POLLUTANT		METHOD			QUANTITY		
			Method Used				
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO LAND					Please enter all quantities in this section in KGs		
POLLUTANT		METHOD			QUANTITY		
			Method Used				
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

Please enter all quantities on this sheet in Tonnes

3

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
Within the Country	19 07 03	No	223333.0	landfill leachate other than those mentioned in 19 07 02	D9	M	Volume Calculation	Offsite in Ireland	Dublin City Council Waste Water Treatment Facility,D0034-01	.,Ringsend,Dublin 4,.,Ireland		

* Select a row by double-clicking the Description of Waste then click the delete button

Link to previous years waste data
Link to previous years waste summary data & percentage change

NACE_Group	NACE_SubGroup	NACE_Code	NACE_Description	NACE_ISIC
12	0	0	Manufacture of tobacco products	1200
36	0	0	Water collection, treatment and supply	3600
37	0	0	Sewerage	3700
39	0	0	Remediation activities and other waste management services	3900
75	0	0	Veterinary activities	7500
92	0	0	Gambling and betting activities	9200
97	0	0	Activities of households as employers of domestic personnel	9700
99	0	0	Activities of extraterritorial organisations and bodies	9900
02	1	0	Silviculture and other forestry activities	0210
05	1	0	Mining of hard coal	0510
06	1	0	Extraction of crude petroleum	0610
07	1	0	Mining of iron ores	0710
09	1	0	Support activities for petroleum and natural gas extraction	0910
13	1	0	Preparation and spinning of textile fibres	1311
16	1	0	Sawmilling and planing of wood	1610
19	1	0	Manufacture of coke oven products	1910
21	1	0	Manufacture of basic pharmaceutical products	2100*
24	1	0	Manufacture of basic iron and steel and of ferro-alloys	2410*
29	1	0	Manufacture of motor vehicles	2910
41	1	0	Development of building projects	4100*
49	1	0	Passenger rail transport, interurban	4911
50	1	0	Sea and coastal passenger water transport	5011
51	1	0	Passenger air transport	5110
52	1	0	Warehousing and storage	5210
53	1	0	Postal activities under universal service obligation	5310
55	1	0	Hotels and similar accommodation	5510*
56	1	0	Restaurants and mobile food service activities	5610
60	1	0	Radio broadcasting	6010
61	1	0	Wired telecommunications activities	6110
68	1	0	Buying and selling of own real estate	6810*
69	1	0	Legal activities	6910
70	1	0	Activities of head offices	7010
74	1	0	Specialised design activities	7410
78	1	0	Activities of employment placement agencies	7810
80	1	0	Private security activities	8010
81	1	0	Combined facilities support activities	8110
85	1	0	Pre-primary education	8510*
86	1	0	Hospital activities	8610
87	1	0	Residential nursing care activities	8710
88	1	0	Social work activities without accommodation for the elderly and disabled	8810
98	1	0	Undifferentiated goods-producing activities of private households for own use	9810
02	2	0	Logging	0220
05	2	0	Mining of lignite	0520
06	2	0	Extraction of natural gas	0620
10	2	0	Processing and preserving of fish, crustaceans and molluscs	1020
13	2	0	Weaving of textiles	1312
14	2	0	Manufacture of articles of fur	1420
15	2	0	Manufacture of footwear	1520
18	2	0	Reproduction of recorded media	1820
19	2	0	Manufacture of refined petroleum products	1920
20	2	0	Manufacture of pesticides and other agrochemical products	2021
21	2	0	Manufacture of pharmaceutical preparations	2100*
23	2	0	Manufacture of refractory products	2391
24	2	0	Manufacture of tubes, pipes, hollow profiles and related fittings, of steel	2410*
26	2	0	Manufacture of computers and peripheral equipment	2620
27	2	0	Manufacture of batteries and accumulators	2720
29	2	0	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	2920
30	2	0	Manufacture of railway locomotives and rolling stock	3020
32	2	0	Manufacture of musical instruments	3220
33	2	0	Installation of industrial machinery and equipment	3320
41	2	0	Construction of residential and non-residential buildings	4100*
45	2	0	Maintenance and repair of motor vehicles	4520
49	2	0	Freight rail transport	4912
50	2	0	Sea and coastal freight water transport	5012
53	2	0	Other postal and courier activities	5320
55	2	0	Holiday and other short-stay accommodation	5510*
59	2	0	Sound recording and music publishing activities	5920
60	2	0	Television programming and broadcasting activities	6020
61	2	0	Wireless telecommunications activities	6120
64	2	0	Activities of holding companies	6420
65	2	0	Reinsurance	6520
68	2	0	Renting and operating of own or leased real estate	6810*
69	2	0	Accounting, bookkeeping and auditing activities; tax consultancy	6920
71	2	0	Technical testing and analysis	7120
72	2	0	Research and experimental development on social sciences and humanities	7220
73	2	0	Market research and public opinion polling	7320
74	2	0	Photographic activities	7420
78	2	0	Temporary employment agency activities	7820
80	2	0	Security systems service activities	8020
82	2	0	Activities of call centres	8220
85	2	0	Primary education	8510*
87	2	0	Residential care activities for mental retardation, mental health and substance abuse	8720
94	2	0	Activities of trade unions	9420
98	2	0	Undifferentiated service-producing activities of private households for own use	9820
01	3	0	Plant propagation	0130
02	3	0	Gathering of wild growing non-wood products	0230
13	3	0	Finishing of textiles	1313

20	3	0	Manufacture of paints, varnishes and similar coatings, printing ink and mastics	2022
25	3	0	Manufacture of steam generators, except central heating hot water boilers	2513
26	3	0	Manufacture of communication equipment	2630
28	3	0	Manufacture of agricultural and forestry machinery	2821
30	3	0	Manufacture of air and spacecraft and related machinery	3030
32	3	0	Manufacture of sports goods	3230
35	3	0	Steam and air conditioning supply	3530
47	3	0	Retail sale of automotive fuel in specialised stores	4730
50	3	0	Inland passenger water transport	5021
55	3	0	Camping grounds, recreational vehicle parks and trailer parks	5520
56	3	0	Beverage serving activities	5630
61	3	0	Satellite telecommunications activities	6130
64	3	0	Trusts, funds and similar financial entities	6430
65	3	0	Pension funding	6530
66	3	0	Fund management activities	6630
74	3	0	Translation and interpretation activities	7490*
78	3	0	Other human resources provision	7830
80	3	0	Investigation activities	8030
81	3	0	Landscape service activities	8130
82	3	0	Organisation of conventions and trade shows	8230
84	3	0	Compulsory social security activities	8430
87	3	0	Residential care activities for the elderly and disabled	8730
02	4	0	Support services to forestry	0240
25	4	0	Manufacture of weapons and ammunition	2520
26	4	0	Manufacture of consumer electronics	2640
27	4	0	Manufacture of electric lighting equipment	2740
30	4	0	Manufacture of military fighting vehicles	3040
32	4	0	Manufacture of games and toys	3240
45	4	0	Sale, maintenance and repair of motorcycles and related parts and accessories	4540
50	4	0	Inland freight water transport	5022
77	4	0	Leasing of intellectual property and similar products, except copyrighted works	7740
01	5	0	Mixed farming	0150
25	5	0	Forging, pressing, stamping and roll-forming of metal; powder metallurgy	2591
32	5	0	Manufacture of medical and dental instruments and supplies	3250
49	5	0	Transport via pipeline	4930
20	6	0	Manufacture of man-made fibres	2030
26	6	0	Manufacture of irradiation, electromedical and electrotherapeutic equipment	2660
85	6	0	Educational support activities	8550
01	7	0	Hunting, trapping and related service activities	0170
23	7	0	Cutting, shaping and finishing of stone	2396
26	7	0	Manufacture of optical instruments and photographic equipment	2670
26	8	0	Manufacture of magnetic and optical media	2680
09	9	0	Support activities for other mining and quarrying	0990
27	9	0	Manufacture of other electrical equipment	2790
46	9	0	Non-specialised wholesale trade	4690
55	9	0	Other accommodation	5590
61	9	0	Other telecommunications activities	6190
74	9	0	Other professional, scientific and technical activities n.e.c.	7490*
79	9	0	Other reservation service and related activities	7990
86	9	0	Other human health activities	8690
87	9	0	Other residential care activities	8790
11	0	1	Distilling, rectifying and blending of spirits	1101
31	0	1	Manufacture of office and shop furniture	3100*
62	0	1	Computer programming activities	6201
90	0	1	Performing arts	9000*
91	0	1	Library and archives activities	9101
96	0	1	Washing and (dry-)cleaning of textile and fur products	9601
01	1	1	Growing of cereals (except rice), leguminous crops and oil seeds	0111
03	1	1	Marine fishing	0311
08	1	1	Quarrying of ornamental and building stone, limestone, gypsum, chalk and slate	0810*
10	1	1	Processing and preserving of meat	1010*
14	1	1	Manufacture of leather clothes	1410*
15	1	1	Tanning and dressing of leather; dressing and dyeing of fur	1511
17	1	1	Manufacture of pulp	1701*
18	1	1	Printing of newspapers	1811*
20	1	1	Manufacture of industrial gases	2011*
22	1	1	Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres	2211
23	1	1	Manufacture of flat glass	2310*
25	1	1	Manufacture of metal structures and parts of structures	2511*
26	1	1	Manufacture of electronic components	2610*
27	1	1	Manufacture of electric motors, generators and transformers	2710*
28	1	1	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines	2811
30	1	1	Building of ships and floating structures	3011
32	1	1	Striking of coins	3211*
33	1	1	Repair of fabricated metal products	3311
35	1	1	Production of electricity	3510*
38	1	1	Collection of non-hazardous waste	3811
42	1	1	Construction of roads and motorways	4210*
43	1	1	Demolition	4311
45	1	1	Sale of cars and light motor vehicles	4510*
46	1	1	Agents involved in the sale of agricultural raw materials, live animals, textile raw materials and semi-fin	4610*
47	1	1	Retail sale in non-specialised stores with food, beverages or tobacco predominating	4711
58	1	1	Book publishing	5811
59	1	1	Motion picture, video and television programme production activities	5911
63	1	1	Data processing, hosting and related activities	6311
64	1	1	Central banking	6411
65	1	1	Life insurance	6511
66	1	1	Administration of financial markets	6611

71	1	1	Architectural activities	7110*
72	1	1	Research and experimental development on biotechnology	7210*
73	1	1	Advertising agencies	7310*
77	1	1	Renting and leasing of cars and light motor vehicles	7710*
79	1	1	Travel agency activities	7911
82	1	1	Combined office administrative service activities	8211
84	1	1	General public administration activities	8411
93	1	1	Operation of sports facilities	9311*
94	1	1	Activities of business and employers membership organisations	9411
95	1	1	Repair of computers and peripheral equipment	9511
01	2	1	Growing of grapes	0121
03	2	1	Marine aquaculture	0321
07	2	1	Mining of uranium and thorium ores	0721
16	2	1	Manufacture of veneer sheets and wood-based panels	1621
17	2	1	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	1702
22	2	1	Manufacture of plastic plates, sheets, tubes and profiles	2220*
25	2	1	Manufacture of central heating radiators and boilers	2512*
28	2	1	Manufacture of ovens, furnaces and furnace burners	2815
35	2	1	Manufacture of gas	3520*
38	2	1	Treatment and disposal of non-hazardous waste	3821
42	2	1	Construction of utility projects for fluids	4220*
43	2	1	Electrical installation	4321
46	2	1	Wholesale of grain, unmanufactured tobacco, seeds and animal feeds	4620*
47	2	1	Retail sale of fruit and vegetables in specialised stores	4721*
51	2	1	Freight air transport	5120*
52	2	1	Service activities incidental to land transportation	5221
56	2	1	Event catering activities	5621
58	2	1	Publishing of computer games	5820*
66	2	1	Risk and damage evaluation	6621
70	2	1	Public relations and communication activities	7020*
77	2	1	Renting and leasing of recreational and sports goods	7721
81	2	1	General cleaning of buildings	8121
84	2	1	Foreign affairs	8421
86	2	1	General medical practice activities	8620*
93	2	1	Activities of amusement parks and theme parks	9321
95	2	1	Repair of consumer electronics	9521
10	3	1	Processing and preserving of potatoes	1030*
14	3	1	Manufacture of knitted and crocheted hosiery	1430*
23	3	1	Manufacture of ceramic tiles and flags	2392*
24	3	1	Cold drawing of bars	2410*
27	3	1	Manufacture of fibre optic cables	2731
29	3	1	Manufacture of electrical and electronic equipment for motor vehicles	2930*
38	3	1	Dismantling of wrecks	3830*
43	3	1	Plastering	4330*
45	3	1	Wholesale trade of motor vehicle parts and accessories	4530*
46	3	1	Wholesale of fruit and vegetables	4630*
49	3	1	Urban and suburban passenger land transport	4921
68	3	1	Real estate agencies	6820*
77	3	1	Renting and leasing of agricultural machinery and equipment	7730*
85	3	1	General secondary education	8521
01	4	1	Raising of dairy cattle	0141*
10	4	1	Manufacture of oils and fats	1040*
20	4	1	Manufacture of soap and detergents, cleaning and polishing preparations	2023*
23	4	1	Manufacture of ceramic household and ornamental articles	2393*
24	4	1	Precious metals production	2420*
28	4	1	Manufacture of metal forming machinery	2822*
46	4	1	Wholesale of textiles	4641*
47	4	1	Retail sale of computers, peripheral units and software in specialised stores	4741*
49	4	1	Freight transport by road	4923*
85	4	1	Post-secondary non-tertiary education	8530*
10	5	1	Operation of dairies and cheese making	1050*
20	5	1	Manufacture of explosives	2029*
23	5	1	Manufacture of cement	2394*
24	5	1	Casting of iron	2431*
26	5	1	Manufacture of instruments and appliances for measuring, testing and navigation	2651
27	5	1	Manufacture of electric domestic appliances	2750*
46	5	1	Wholesale of computers, computer peripheral equipment and software	4651
47	5	1	Retail sale of textiles in specialised stores	4751
85	5	1	Sports and recreation education	8541
01	6	1	Support activities for crop production	0161
10	6	1	Manufacture of grain mill products	1061
23	6	1	Manufacture of concrete products for construction purposes	2395*
25	6	1	Treatment and coating of metals	2592*
46	6	1	Wholesale of agricultural machinery, equipment and supplies	4653
47	6	1	Retail sale of books in specialised stores	4761*
10	7	1	Manufacture of bread; manufacture of fresh pastry goods and cakes	1071*
25	7	1	Manufacture of cutlery	2593*
46	7	1	Wholesale of solid, liquid and gaseous fuels and related products	4661
47	7	1	Retail sale of clothing in specialised stores	4771*
10	8	1	Manufacture of sugar	1072
47	8	1	Retail sale via stalls and markets of food, beverages and tobacco products	4781
08	9	1	Mining of chemical and fertiliser minerals	0891
10	9	1	Manufacture of prepared feeds for farm animals	1080*
13	9	1	Manufacture of knitted and crocheted fabrics	1391
23	9	1	Production of abrasive products	2399*
25	9	1	Manufacture of steel drums and similar containers	2599*
28	9	1	Manufacture of machinery for metallurgy	2823
30	9	1	Manufacture of motorcycles	3091

32	9	1	Manufacture of brooms and brushes	3290*
42	9	1	Construction of water projects	4290*
43	9	1	Roofing activities	4390*
47	9	1	Retail sale via mail order houses or via Internet	4791
63	9	1	News agency activities	6391
64	9	1	Financial leasing	6491
82	9	1	Activities of collection agencies and credit bureaus	8291
88	9	1	Child day-care activities	8890*
94	9	1	Activities of religious organisations	9491
11	0	2	Manufacture of wine from grape	1102*
31	0	2	Manufacture of kitchen furniture	3100*
62	0	2	Computer consultancy activities	6202*
90	0	2	Support activities to performing arts	9000*
91	0	2	Museums activities	9102*
96	0	2	Hairdressing and other beauty treatment	9602
01	1	2	Growing of rice	0112
03	1	2	Freshwater fishing	0312
08	1	2	Operation of gravel and sand pits; mining of clays and kaolin	0810*
10	1	2	Processing and preserving of poultry meat	1010*
14	1	2	Manufacture of workwear	1410*
15	1	2	Manufacture of luggage, handbags and the like, saddlery and harness	1512
17	1	2	Manufacture of paper and paperboard	1701*
18	1	2	Other printing	1811*
20	1	2	Manufacture of dyes and pigments	2011*
23	1	2	Shaping and processing of flat glass	2310*
25	1	2	Manufacture of doors and windows of metal	2511*
26	1	2	Manufacture of loaded electronic boards	2610*
27	1	2	Manufacture of electricity distribution and control apparatus	2710*
28	1	2	Manufacture of fluid power equipment	2812
30	1	2	Building of pleasure and sporting boats	3012
32	1	2	Manufacture of jewellery and related articles	3211*
33	1	2	Repair of machinery	3312
35	1	2	Transmission of electricity	3510*
38	1	2	Collection of hazardous waste	3812
42	1	2	Construction of railways and underground railways	4210*
43	1	2	Site preparation	4312*
46	1	2	Agents involved in the sale of fuels, ores, metals and industrial chemicals	4610*
58	1	2	Publishing of directories and mailing lists	5812
59	1	2	Motion picture, video and television programme post-production activities	5912
63	1	2	Web portals	6312
65	1	2	Non-life insurance	6512
66	1	2	Security and commodity contracts brokerage	6612
71	1	2	Engineering activities and related technical consultancy	7110*
73	1	2	Media representation	7310*
77	1	2	Renting and leasing of trucks	7710*
79	1	2	Tour operator activities	7912
84	1	2	Regulation of the activities of providing health care, education, cultural services and other social servic	8412
93	1	2	Activities of sport clubs	9312
94	1	2	Activities of professional membership organisations	9412
95	1	2	Repair of communication equipment	9512
01	2	2	Growing of tropical and subtropical fruits	0122
03	2	2	Freshwater aquaculture	0322
16	2	2	Manufacture of assembled parquet floors	1622*
17	2	2	Manufacture of household and sanitary goods and of toilet requisites	1709*
22	2	2	Manufacture of plastic packing goods	2220*
28	2	2	Manufacture of lifting and handling equipment	2816
35	2	2	Distribution of gaseous fuels through mains	3520*
38	2	2	Treatment and disposal of hazardous waste	3822
42	2	2	Construction of utility projects for electricity and telecommunications	4220*
43	2	2	Plumbing, heat and air conditioning installation	4322
46	2	2	Wholesale of flowers and plants	4620*
47	2	2	Retail sale of meat and meat products in specialised stores	4721*
51	2	2	Space transport	5120*
52	2	2	Service activities incidental to water transportation	5222
66	2	2	Activities of insurance agents and brokers	6622
70	2	2	Business and other management consultancy activities	7020*
77	2	2	Renting of video tapes and disks	7722
81	2	2	Other building and industrial cleaning activities	8129*
84	2	2	Defence activities	8422
86	2	2	Specialist medical practice activities	8620*
95	2	2	Repair of household appliances and home and garden equipment	9522
10	3	2	Manufacture of fruit and vegetable juice	1030*
23	3	2	Manufacture of bricks, tiles and construction products, in baked clay	2392*
24	3	2	Cold rolling of narrow strip	2410*
27	3	2	Manufacture of other electronic and electric wires and cables	2732
29	3	2	Manufacture of other parts and accessories for motor vehicles	2930*
38	3	2	Recovery of sorted materials	3830*
43	3	2	Joinery installation	4330*
45	3	2	Retail trade of motor vehicle parts and accessories	4530*
46	3	2	Wholesale of meat and meat products	4630*
49	3	2	Taxi operation	4922*
68	3	2	Management of real estate on a fee or contract basis	6820*
77	3	2	Renting and leasing of construction and civil engineering machinery and equipment	7730*
85	3	2	Technical and vocational secondary education	8522
01	4	2	Raising of other cattle and buffaloes	0141*
10	4	2	Manufacture of margarine and similar edible fats	1040*
20	4	2	Manufacture of perfumes and toilet preparations	2023*
23	4	2	Manufacture of ceramic sanitary fixtures	2393*

24	4	2	Aluminium production	2420*
46	4	2	Wholesale of clothing and footwear	4641*
47	4	2	Retail sale of telecommunications equipment in specialised stores	4741*
49	4	2	Removal services	4923*
85	4	2	Tertiary education	8530*
10	5	2	Manufacture of ice cream	1050*
20	5	2	Manufacture of glues	2029*
23	5	2	Manufacture of lime and plaster	2394*
24	5	2	Casting of steel	2431*
26	5	2	Manufacture of watches and clocks	2652
27	5	2	Manufacture of non-electric domestic appliances	2750*
46	5	2	Wholesale of electronic and telecommunications equipment and parts	4652
47	5	2	Retail sale of hardware, paints and glass in specialised stores	4752
85	5	2	Cultural education	8542
01	6	2	Support activities for animal production	0162
10	6	2	Manufacture of starches and starch products	1062
23	6	2	Manufacture of plaster products for construction purposes	2395*
25	6	2	Machining	2592*
46	6	2	Wholesale of machine tools	4659*
47	6	2	Retail sale of newspapers and stationery in specialised stores	4761*
10	7	2	Manufacture of rusks and biscuits; manufacture of preserved pastry goods and cakes	1071*
25	7	2	Manufacture of locks and hinges	2593*
46	7	2	Wholesale of metals and metal ores	4662
47	7	2	Retail sale of footwear and leather goods in specialised stores	4771*
10	8	2	Manufacture of cocoa, chocolate and sugar confectionery	1073
47	8	2	Retail sale via stalls and markets of textiles, clothing and footwear	4782
08	9	2	Extraction of peat	0892
10	9	2	Manufacture of prepared pet foods	1080*
13	9	2	Manufacture of made-up textile articles, except apparel	1392
25	9	2	Manufacture of light metal packaging	2599*
28	9	2	Manufacture of machinery for mining, quarrying and construction	2824
30	9	2	Manufacture of bicycles and invalid carriages	3092
64	9	2	Other credit granting	6492
82	9	2	Packaging activities	8292
94	9	2	Activities of political organisations	9492
11	0	3	Manufacture of cider and other fruit wines	1102*
31	0	3	Manufacture of mattresses	3100*
62	0	3	Computer facilities management activities	6202*
90	0	3	Artistic creation	9000*
91	0	3	Operation of historical sites and buildings and similar visitor attractions	9102*
96	0	3	Funeral and related activities	9603
01	1	3	Growing of vegetables and melons, roots and tubers	0113
10	1	3	Production of meat and poultry meat products	1010*
14	1	3	Manufacture of other outerwear	1410*
18	1	3	Pre-press and pre-media services	1812*
20	1	3	Manufacture of other inorganic basic chemicals	2011*
23	1	3	Manufacture of hollow glass	2310*
28	1	3	Manufacture of other pumps and compressors	2813*
32	1	3	Manufacture of imitation jewellery and related articles	3212
33	1	3	Repair of electronic and optical equipment	3313
35	1	3	Distribution of electricity	3510*
42	1	3	Construction of bridges and tunnels	4210*
43	1	3	Test drilling and boring	4312*
46	1	3	Agents involved in the sale of timber and building materials	4610*
58	1	3	Publishing of newspapers	5813*
59	1	3	Motion picture, video and television programme distribution activities	5913
84	1	3	Regulation of and contribution to more efficient operation of businesses	8413
93	1	3	Fitness facilities	9311*
01	2	3	Growing of citrus fruits	0123
16	2	3	Manufacture of other builders' carpentry and joinery	1622*
17	2	3	Manufacture of paper stationery	1709*
22	2	3	Manufacture of builders' ware of plastic	2220*
28	2	3	Manufacture of office machinery and equipment (except computers and peripheral equipment)	2817
35	2	3	Trade of gas through mains	3520*
46	2	3	Wholesale of live animals	4620*
47	2	3	Retail sale of fish, crustaceans and molluscs in specialised stores	4721*
52	2	3	Service activities incidental to air transportation	5223
84	2	3	Justice and judicial activities	8423*
86	2	3	Dental practice activities	8620*
95	2	3	Repair of footwear and leather goods	9523
24	3	3	Cold forming or folding	2410*
27	3	3	Manufacture of wiring devices	2733
43	3	3	Floor and wall covering	4330*
46	3	3	Wholesale of dairy products, eggs and edible oils and fats	4630*
77	3	3	Renting and leasing of office machinery and equipment (including computers)	7730*
01	4	3	Raising of horses and other equines	0142
23	4	3	Manufacture of ceramic insulators and insulating fittings	2393*
24	4	3	Lead, zinc and tin production	2420*
46	4	3	Wholesale of electrical household appliances	4649*
47	4	3	Retail sale of audio and video equipment in specialised stores	4742
20	5	3	Manufacture of essential oils	2029*
24	5	3	Casting of light metals	2432*
47	5	3	Retail sale of carpets, rugs, wall and floor coverings in specialised stores	4753
85	5	3	Driving school activities	8549*
01	6	3	Post-harvest crop activities	0163
23	6	3	Manufacture of ready-mixed concrete	2395*
46	6	3	Wholesale of mining, construction and civil engineering machinery	4659*
47	6	3	Retail sale of music and video recordings in specialised stores	4762

10	7	3	Manufacture of macaroni, noodles, couscous and similar farinaceous products	1074
25	7	3	Manufacture of tools	2593*
46	7	3	Wholesale of wood, construction materials and sanitary equipment	4663*
47	7	3	Dispensing chemist in specialised stores	4772*
10	8	3	Processing of tea and coffee	1079*
08	9	3	Extraction of salt	0893
13	9	3	Manufacture of carpets and rugs	1393
25	9	3	Manufacture of wire products, chain and springs	2599*
28	9	3	Manufacture of machinery for food, beverage and tobacco processing	2825
11	0	4	Manufacture of other non-distilled fermented beverages	1102*
90	0	4	Operation of arts facilities	9000*
91	0	4	Botanical and zoological gardens and nature reserves activities	9103
96	0	4	Physical well-being activities	9609*
01	1	4	Growing of sugar cane	0114
14	1	4	Manufacture of underwear	1410*
18	1	4	Binding and related services	1812*
20	1	4	Manufacture of other organic basic chemicals	2011*
23	1	4	Manufacture of glass fibres	2310*
28	1	4	Manufacture of other taps and valves	2813*
33	1	4	Repair of electrical equipment	3314
35	1	4	Trade of electricity	3510*
46	1	4	Agents involved in the sale of machinery, industrial equipment, ships and aircraft	4610*
58	1	4	Publishing of journals and periodicals	5813*
59	1	4	Motion picture projection activities	5914
01	2	4	Growing of pome fruits and stone fruits	0124
16	2	4	Manufacture of wooden containers	1623
17	2	4	Manufacture of wallpaper	1709*
28	2	4	Manufacture of power-driven hand tools	2818
46	2	4	Wholesale of hides, skins and leather	4620*
47	2	4	Retail sale of bread, cakes, flour confectionery and sugar confectionery in specialised stores	4721*
52	2	4	Cargo handling	5224
84	2	4	Public order and safety activities	8423*
95	2	4	Repair of furniture and home furnishings	9524
24	3	4	Cold drawing of wire	2410*
43	3	4	Painting and glazing	4330*
46	3	4	Wholesale of beverages	4630*
77	3	4	Renting and leasing of water transport equipment	7730*
01	4	4	Raising of camels and camelids	0143
23	4	4	Manufacture of other technical ceramic products	2393*
24	4	4	Copper production	2420*
46	4	4	Wholesale of china and glassware and cleaning materials	4649*
24	5	4	Casting of other non-ferrous metals	2432*
47	5	4	Retail sale of electrical household appliances in specialised stores	4759*
01	6	4	Seed processing for propagation	0164
23	6	4	Manufacture of mortars	2395*
46	6	4	Wholesale of machinery for the textile industry and of sewing and knitting machines	4659*
47	6	4	Retail sale of sporting equipment in specialised stores	4763
46	7	4	Wholesale of hardware, plumbing and heating equipment and supplies	4663*
47	7	4	Retail sale of medical and orthopaedic goods in specialised stores	4772*
10	8	4	Manufacture of condiments and seasonings	1079*
13	9	4	Manufacture of cordage, rope, twine and netting	1394
25	9	4	Manufacture of fasteners and screw machine products	2599*
28	9	4	Manufacture of machinery for textile, apparel and leather production	2826
11	0	5	Manufacture of beer	1103*
01	1	5	Growing of tobacco	0115
20	1	5	Manufacture of fertilisers and nitrogen compounds	2012
28	1	5	Manufacture of bearings, gears, gearing and driving elements	2814
33	1	5	Repair and maintenance of ships and boats	3315*
46	1	5	Agents involved in the sale of furniture, household goods, hardware and ironmongery	4610*
01	2	5	Growing of other tree and bush fruits and nuts	0125
28	2	5	Manufacture of non-domestic cooling and ventilation equipment	2819*
47	2	5	Retail sale of beverages in specialised stores	4722
84	2	5	Fire service activities	8423*
95	2	5	Repair of watches, clocks and jewellery	9529*
46	3	5	Wholesale of tobacco products	4630*
77	3	5	Renting and leasing of air transport equipment	7730*
01	4	5	Raising of sheep and goats	0144
24	4	5	Other non-ferrous metal production	2420*
46	4	5	Wholesale of perfume and cosmetics	4649*
23	6	5	Manufacture of fibre cement	2395*
46	6	5	Wholesale of office furniture	4659*
47	6	5	Retail sale of games and toys in specialised stores	4764
46	7	5	Wholesale of chemical products	4669*
47	7	5	Retail sale of cosmetic and toilet articles in specialised stores	4772*
10	8	5	Manufacture of prepared meals and dishes	1075
13	9	5	Manufacture of non-wovens and articles made from non-wovens, except apparel	1399*
28	9	5	Manufacture of machinery for paper and paperboard production	2829*
11	0	6	Manufacture of malt	1103*
01	1	6	Growing of fibre crops	0116
20	1	6	Manufacture of plastics in primary forms	2013*
33	1	6	Repair and maintenance of aircraft and spacecraft	3315*
46	1	6	Agents involved in the sale of textiles, clothing, fur, footwear and leather goods	4610*
01	2	6	Growing of oleaginous fruits	0126
47	2	6	Retail sale of tobacco products in specialised stores	4723
46	3	6	Wholesale of sugar and chocolate and sugar confectionery	4630*
01	4	6	Raising of swine/pigs	0145
24	4	6	Processing of nuclear fuel	2420*
46	4	6	Wholesale of pharmaceutical goods	4649*

46	6	6	Wholesale of other office machinery and equipment	4659*
46	7	6	Wholesale of other intermediate products	4669*
47	7	6	Retail sale of flowers, plants, seeds, fertilisers, pet animals and pet food in specialised stores	4773*
10	8	6	Manufacture of homogenised food preparations and dietetic food	1079*
13	9	6	Manufacture of other technical and industrial textiles	1399*
28	9	6	Manufacture of plastic and rubber machinery	2829*
11	0	7	Manufacture of soft drinks; production of mineral waters and other bottled waters	1104
20	1	7	Manufacture of synthetic rubber in primary forms	2013*
33	1	7	Repair and maintenance of other transport equipment	3315*
46	1	7	Agents involved in the sale of food, beverages and tobacco	4610*
01	2	7	Growing of beverage crops	0127
46	3	7	Wholesale of coffee, tea, cocoa and spices	4630*
01	4	7	Raising of poultry	0146
46	4	7	Wholesale of furniture, carpets and lighting equipment	4649*
46	7	7	Wholesale of waste and scrap	4669*
47	7	7	Retail sale of watches and jewellery in specialised stores	4773*
46	1	8	Agents specialised in the sale of other particular products	4610*
01	2	8	Growing of spices, aromatic, drug and pharmaceutical crops	0128
46	3	8	Wholesale of other food, including fish, crustaceans and molluscs	4630*
46	4	8	Wholesale of watches and jewellery	4649*
47	7	8	Other retail sale of new goods in specialised stores	4773*
31	0	9	Manufacture of other furniture	3100*
62	0	9	Other information technology and computer service activities	6209
96	0	9	Other personal service activities n.e.c.	9609*
01	1	9	Growing of other non-perennial crops	0119
14	1	9	Manufacture of other wearing apparel and accessories	1410*
22	1	9	Manufacture of other rubber products	2219
23	1	9	Manufacture and processing of other glass, including technical glassware	2310*
33	1	9	Repair of other equipment	3319
45	1	9	Sale of other motor vehicles	4510*
46	1	9	Agents involved in the sale of a variety of goods	4610*
47	1	9	Other retail sale in non-specialised stores	4719
58	1	9	Other publishing activities	5819
64	1	9	Other monetary intermediation	6419
66	1	9	Other activities auxiliary to financial services, except insurance and pension funding	6619
72	1	9	Other research and experimental development on natural sciences and engineering	7210*
82	1	9	Photocopying, document preparation and other specialised office support activities	8219
93	1	9	Other sports activities	9319
01	2	9	Growing of other perennial crops	0129
07	2	9	Mining of other non-ferrous metal ores	0729
16	2	9	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials	1629
17	2	9	Manufacture of other articles of paper and paperboard	1709*
22	2	9	Manufacture of other plastic products	2220*
25	2	9	Manufacture of other tanks, reservoirs and containers of metal	2512*
28	2	9	Manufacture of other general-purpose machinery n.e.c.	2819*
43	2	9	Other construction installation	4329
47	2	9	Other retail sale of food in specialised stores	4721*
52	2	9	Other transportation support activities	5229
56	2	9	Other food service activities	5629
58	2	9	Other software publishing	5820*
66	2	9	Other activities auxiliary to insurance and pension funding	6629
77	2	9	Renting and leasing of other personal and household goods	7729
81	2	9	Other cleaning activities	8129*
93	2	9	Other amusement and recreation activities	9329
95	2	9	Repair of other personal and household goods	9529*
10	3	9	Other processing and preserving of fruit and vegetables	1030*
14	3	9	Manufacture of other knitted and crocheted apparel	1430*
43	3	9	Other building completion and finishing	4330*
46	3	9	Non-specialised wholesale of food, beverages and tobacco	4630*
49	3	9	Other passenger land transport n.e.c.	4922*
77	3	9	Renting and leasing of other machinery, equipment and tangible goods n.e.c.	7730*
01	4	9	Raising of other animals	0149
23	4	9	Manufacture of other ceramic products	2393*
28	4	9	Manufacture of other machine tools	2822*
46	4	9	Wholesale of other household goods	4649*
20	5	9	Manufacture of other chemical products n.e.c.	2029*
47	5	9	Retail sale of furniture, lighting equipment and other household articles in specialised stores	4759*
85	5	9	Other education n.e.c.	8549*
23	6	9	Manufacture of other articles of concrete, plaster and cement	2395*
46	6	9	Wholesale of other machinery and equipment	4659*
47	7	9	Retail sale of second-hand goods in stores	4774
10	8	9	Manufacture of other food products n.e.c.	1079*
47	8	9	Retail sale via stalls and markets of other goods	4789
08	9	9	Other mining and quarrying n.e.c.	0899
13	9	9	Manufacture of other textiles n.e.c.	1399*
23	9	9	Manufacture of other non-metallic mineral products n.e.c.	2399*
25	9	9	Manufacture of other fabricated metal products n.e.c.	2599*
28	9	9	Manufacture of other special-purpose machinery n.e.c.	2829*
30	9	9	Manufacture of other transport equipment n.e.c.	3099
32	9	9	Other manufacturing n.e.c.	3290*
42	9	9	Construction of other civil engineering projects n.e.c.	4290*
43	9	9	Other specialised construction activities n.e.c.	4390*
47	9	9	Other retail sale not in stores, stalls or markets	4799
63	9	9	Other information service activities n.e.c.	6399
64	9	9	Other financial service activities, except insurance and pension funding n.e.c.	6499
82	9	9	Other business support service activities n.e.c.	8299
88	9	9	Other social work activities without accommodation n.e.c.	8890*
94	9	9	Activities of other membership organisations n.e.c.	9499

Activity_Group	Activity_SubGroup	Activity_Code	Activity_Name	Capacity_Threshold
1	NA	a	Mineral oil and gas refineries	
1	NA	b	Installations for gasification and liquefaction	
1	NA	c	Thermal power stations and other combustion installations	With a heat input of 50 megawatts (MW)
1	NA	d	Coke ovens	
1	NA	e	Coal rolling mills	With a capacity of 1 tonne per hour
1	NA	f	Installations for the manufacture of coal products and solid smokeless fuel	
2	c	i	Hot-rolling mills	With a capacity of 20 tonnes of crude steel per hour per hour
2	c	ii	Smitheries with hammers	With an energy of 50 kilojoules per hammer, where the calorific power used exceeds 20 MW
2	c	iii	Application of protective fused metal coats	With an input of 2 tonnes of crude steel per hour
2	e	i	For the production of non-ferrous crude metals from ore,concentrates or secondary raw materials by metallurgical,chemical or electrolytic processes	
2	e	ii	For the smelting, including the alloying, of non-ferrous metals, including recovered products (refining,	With a melting capacity of 4 tonnes per day for lead and cadmium or 20 tonnes per day for all other metals
2	NA	a	Metal ore (including sulphide ore) roasting or sintering installations	
2	NA	b	Installations for the production of pig iron or steel (primary or secondary melting) including continuou	With a capacity of 2,5 tonnes per hour
			Hot-rolling mills	
			Smitheries with hammers	
2	NA	c	Application of protective fused metal coats	
2	NA	d	Ferrous metal foundries	With a production capacity of 20 tonnes per day
2	NA	f	Installations for surface treatment of metals and plastic materials using an electrolytic or chemical pro	Where the volume of the treatment vats equals 30 m3
3	c	i	Cement clinker in rotary kilns	With a production capacity of 500 tonnes per day
3	c	ii	Lime in rotary kilns	With a production capacity of 50 tonnes per day
3	c	iii	Cement clinker or lime in other furnaces	With a production capacity of 50 tonnes per day
3	NA	a	Underground mining and related operations	
3	NA	b	Opencast mining and quarrying	Where the surface of the area effectively under extractive operation equals 25 hectares
3	NA	d	Installations for the production of asbestos and the manufacture of asbestos-based products	
3	NA	e	Installations for the manufacture of glass, including glass fibre	With a melting capacity of 20 tonnes per day
3	NA	f	Installations for melting mineral substances, including the production of mineral fibres	With a melting capacity of 20 tonnes per day
3	NA	g	Installations for the manufacture of ceramic products by firing, in particular roofing tiles, bricks, refract	With a production capacity of 75 tonnes per day, or with a kiln capacity of 4 m3 and with a setting density per kiln of 300 kg/m3
4	a	i	Simple hydrocarbons (linear or cyclic, saturated or unsaturated, aliphatic or aromatic)	
4	a	ii	Oxygen-containing hydrocarbons such as alcohols, aldehydes, ketones, carboxylic acids, esters, acetates, ethers, peroxides, epoxy resins	
4	a	iii	Sulphurous hydrocarbons	
4	a	iv	Nitrogenous hydrocarbons such as amines, amides, nitrous compounds, nitro compounds or nitrate compounds, nitriles, cyanates, isocyanates	
4	a	ix	Synthetic rubbers	
4	a	v	Phosphorus-containing hydrocarbons	
4	a	vi	Halogenic hydrocarbons	
4	a	vii	Organometallic compounds	
4	a	viii	Basic plastic materials (polymers, synthetic fibres and cellulose-based fibres)	
4	a	x	Dyes and pigments	
4	a	xi	Surface-active agents and surfactants	
4	b	i	Gases, such as ammonia, chlorine or hydrogen chloride,fluorine or hydrogen fluoride, carbon oxides, sulphur compounds,nitrogen oxides, hydrogen, sulphur dioxide, carbonyl chloride	
4	b	ii	Acids, such as chromic acid, hydrofluoric acid, phosphoric acid, nitric acid, hydrochloric acid, sulphuric acid, oleum, sulphurous acids	
4	b	iii	Bases, such as ammonium hydroxide, potassium hydroxide, sodium hydroxide	
4	b	iv	Salts, such as ammonium chloride, potassium chlorate, potassium carbonate, sodium carbonate, perborate, silver nitrate	
4	b	v	Non-metals, metal oxides or other inorganic compounds such as calcium carbide, silicon, silicon carbide	
4	NA	a	Simple hydrocarbons (linear or cyclic, saturated or unsaturated, aliphatic or aromatic),Oxygen-containing hydrocarbons such as alcohols, aldehydes, ketones, carboxylic acids, esters, acetates, ethers, peroxides, epoxy resins,Nitrogenous hydrocarbons such as amines, amides, nitrous compounds, nitro compounds or nitrate compounds, nitriles, cyanates, isocyanates,Synthetic rubbers,Phosphorus-containing hydrocarbons,Halogenic hydrocarbons,Organometallic compounds,Basic plastic materials (polymers, s
4	NA	b	Gases, such as ammonia, chlorine or hydrogen chloride,fluorine or hydrogen fluoride, carbon oxides, sulphur compounds,nitrogen oxides, hydrogen, sulphur dioxide, carbonyl chloride,Acids, such as chromic acid, hydrofluoric acid, phosphoric acid, nitric acid, hydrochloric acid, sulphuric acid, oleum, sulphurous acids,Bases, such as ammonium hydroxide, potassium hydroxide, sodium hydroxide,Salts, such as ammonium chloride, potassium chlorate, potassium carbonate, sodium carbonate, perborate...
4	NA	c	Chemical installations for the production on an industrial scale of phosphorous-, nitrogen- or potassium-based fertilisers (simple or compound fertilisers)	
4	NA	d	Chemical installations for the production on an industrial scale of basic plant health products and of biocides	
4	NA	e	Installations using a chemical or biological process for the production on an industrial scale of basic pharmaceutical products	
4	NA	f	Installations for the production on an industrial scale of explosives and pyrotechnic products	
5	NA	a	Installations for the recovery or disposal of hazardous waste	Receiving 10 tonnes per day
5	NA	b	Installations for the incineration of non-hazardous waste in the scope of Directive 2000/76/EC of the E	With a capacity of 3 tonnes per hour
5	NA	c	Installations for the disposal of non-hazardous waste	With a capacity of 50 tonnes per day
5	NA	d	Landfills	Receiving 10 tonnes per day or with a total capacity of 25 000 tonnes
5	NA	e	Installations for the disposal or recycling of animal carcasses and animal waste	With a treatment capacity of 10 tonnes per day
5	NA	f	Urban waste-water treatment plants	With a capacity of 100 000 population equivalents
5	NA	g	Independently operated industrial waste-water treatment plants which serve one or more activities of	With a capacity of 10 000 m3 per day
50	NA	1	General	
6	NA	a	Industrial plants for the production of pulp from timber or similar fibrous materials	
6	NA	b	Industrial plants for the production of paper and board and other primary wood products (such as chi	With a production capacity of 20 tonnes per day
6	NA	c	Industrial plants for the preservation of wood and wood products with chemicals	With a production capacity of 50 m3 per day
7	a	i	Installations for the intensive rearing of poultry or pigs (i)	With 40 000 places for poultry
7	a	ii	Installations for the intensive rearing of poultry or pigs (ii)	With 2 000 places for production pigs (over 30 kg)
7	a	iii	Installations for the intensive rearing of poultry or pigs (iii)	With 750 places for sows
7	NA	b	Intensive aquaculture	With a production capacity of 1 000 tonnes of fish or shellfish per year
8	b	i	Animal raw materials (other than milk)	With a finished product production capacity of 75 tonnes per day
8	b	ii	Vegetable raw materials	With a finished product production capacity of 300 tonnes per day (average value on a quarterly basis)
8	NA	a	Slaughterhouses	With a carcass production capacity of 50 tonnes per day
8	NA	c	Treatment and processing of milk	With a capacity to receive 200 tonnes of milk per day (average value on an annual basis)
9	NA	a	Plants for the pre-treatment (operations such as washing, bleaching, mercerisation) or dyeing of fibre	With a treatment capacity of 10 tonnes per day
9	NA	b	Plants for the tanning of hides and skins	With a treatment capacity of 12 tonnes of finished product per day
9	NA	c	Installations for surface treatment of substances,objects or products using organic solvents,in particul	With a consumption capacity of 150 kg per hour or 200 tonnes per year
9	NA	d	Installations for the production of carbon (hard-burnt coal) or electro-graphite by means of incineration or graphitisation	
9	NA	e	Installations for the building of, and painting or removal of paint from ships	With a capacity for ships 100 m long

Emission Type : Air

Category Specific PRTR Pollutants

Pollutant_Number	Pollutant_Name	Pollutant_Lookup

Remaining PRTR Pollutants

Pollutant_Number	Pollutant_Name	Pollutant_Lookup
55	1,1,1-trichloroethane	55 - 1,1,1-trichloroethane
56	1,1,2,2-tetrachloroethane	56 - 1,1,2,2-tetrachloroethane
44	1,2,3,4,5,6-hexachlorocyclohe	44 - 1,2,3,4,5,6-hexachlorocycloh
34	1,2-dichloroethane (EDC)	34 - 1,2-dichloroethane (EDC)
26	Aldrin	26 - Aldrin
06	Ammonia (NH3)	06 - Ammonia (NH3)
61	Anthracene	61 - Anthracene
17	Arsenic and compounds (as A	17 - Arsenic and compounds (as
81	Asbestos	81 - Asbestos
62	Benzene	62 - Benzene
18	Cadmium and compounds (as	18 - Cadmium and compounds (a
03	Carbon dioxide (CO2)	03 - Carbon dioxide (CO2)
02	Carbon monoxide (CO)	02 - Carbon monoxide (CO)
28	Chlordane	28 - Chlordane
29	Chlordecone	29 - Chlordecone
79	Chlorides (as Cl)	79 - Chlorides (as Cl)
80	Chlorine and inorganic compo	80 - Chlorine and inorganic comp
15	Chlorofluorocarbons (CFCs)	15 - Chlorofluorocarbons (CFCs)
19	Chromium and compounds (a	19 - Chromium and compounds (
20	Copper and compounds (as C	20 - Copper and compounds (as Cu)
33	DDT	33 - DDT
70	Di-(2-ethyl hexyl) phthalate (D	70 - Di-(2-ethyl hexyl) phthalate (DEHP)
35	Dichloromethane (DCM)	35 - Dichloromethane (DCM)
36	Dieldrin	36 - Dieldrin
39	Endrin	39 - Endrin
65	Ethyl benzene	65 - Ethyl benzene
66	Ethylene oxide	66 - Ethylene oxide
84	Fluorine and inorganic compo	84 - Fluorine and inorganic compounds (as HF)
40	Halogenated organic compou	40 - Halogenated organic compounds (as AOX)
16	Halons	16 - Halons
41	Heptachlor	41 - Heptachlor
90	Hexabromobiphenyl	90 - Hexabromobiphenyl
42	Hexachlorobenzene (HCB)	42 - Hexachlorobenzene (HCB)
04	Hydro-fluorocarbons (HFCs)	04 - Hydro-fluorocarbons (HFCs)
14	Hydrochlorofluorocarbons (HC	14 - Hydrochlorofluorocarbons (HCFCs)
85	Hydrogen cyanide (HCN)	85 - Hydrogen cyanide (HCN)
23	Lead and compounds (as Pb)	23 - Lead and compounds (as Pb)
45	Lindane	45 - Lindane
21	Mercury and compounds (as H	21 - Mercury and compounds (as Hg)
01	Methane (CH4)	01 - Methane (CH4)
46	Mirex	46 - Mirex
68	Naphthalene	68 - Naphthalene
22	Nickel and compounds (as Ni)	22 - Nickel and compounds (as Ni)
08	Nitrogen oxides (NOx/NO2)	08 - Nitrogen oxides (NOx/NO2)
05	Nitrous oxide (N2O)	05 - Nitrous oxide (N2O)
07	Non-methane volatile organic	07 - Non-methane volatile organic compounds (NMVOC)
86	Particulate matter (PM10)	86 - Particulate matter (PM10)
47	PCDD + PCDF (dioxins + fura	47 - PCDD + PCDF (dioxins + furans)(as Teq)
48	Pentachlorobenzene	48 - Pentachlorobenzene
49	Pentachlorophenol (PCP)	49 - Pentachlorophenol (PCP)
09	Perfluorocarbons (PFCs)	09 - Perfluorocarbons (PFCs)
71	Phenols (as total C)	71 - Phenols (as total C)
50	Polychlorinated biphenyls (PC	50 - Polychlorinated biphenyls (PCBs)
72	Polycyclic aromatic hydrocarb	72 - Polycyclic aromatic hydrocarbons (PAHs)
10	Sulphur hexafluoride (SF6)	10 - Sulphur hexafluoride (SF6)
11	Sulphur oxides (SOx/SO2)	11 - Sulphur oxides (SOx/SO2)
52	Tetrachloroethylene (PER)	52 - Tetrachloroethylene (PER)
53	Tetrachloromethane (TCM)	53 - Tetrachloromethane (TCM)
73	Toluene	73 - Toluene
59	Toxaphene	59 - Toxaphene
54	Trichlorobenzenes (TCBs)(all	54 - Trichlorobenzenes (TCBs)(all isomers)
57	Trichloroethylene	57 - Trichloroethylene
58	Trichloromethane	58 - Trichloromethane
60	Vinyl chloride	60 - Vinyl chloride
78	Xylenes	78 - Xylenes
24	Zinc and compounds (as Zn)	24 - Zinc and compounds (as Zn)

Air Lookup

From Row A	4
To Row A	4
Start Cell A	3
From Row B	7
To Row B	72
Start Cell B	6

Water Lookup

From Row A	76
To Row A	76
Start Cell A	75
From Row B	79
To Row B	150
Start Cell B	78

Offsite Xfers Lookup

From Row	154
To Row	244
Start Cell	153

Land Lookup

From Row	248
To Row	338
Start Cell	247

Emission Type : Water

Category Specific PRTR Pollutants

Pollutant_Number	Pollutant_Name	Pollutant_Lookup

Remaining PRTR Pollutants

Pollutant_Number	Pollutant_Name	Pollutant_Lookup
44	1,2,3,4,5,6-hexachlorocyclohe	44 - 1,2,3,4,5,6-hexachlorocyclohexane(HCH)
34	1,2-dichloroethane (EDC)	34 - 1,2-dichloroethane (EDC)
25	Alachlor	25 - Alachlor
26	Aldrin	26 - Aldrin
61	Anthracene	61 - Anthracene
17	Arsenic and compounds (as A	17 - Arsenic and compounds (as As)
81	Asbestos	81 - Asbestos

27	Atrazine	27 - Atrazine
62	Benzene	62 - Benzene
91	Benzo(g,h,i)perylene	91 - Benzo(g,h,i)perylene
63	Brominated diphenylethers (P	63 - Brominated diphenylethers (PBDE)
18	Cadmium and compounds (as	18 - Cadmium and compounds (as Cd)
28	Chlordane	28 - Chlordane
29	Chlordecone	29 - Chlordecone
30	Chlorfenvinphos	30 - Chlorfenvinphos
79	Chlorides (as Cl)	79 - Chlorides (as Cl)
31	Chloro-alkanes, C10-C13	31 - Chloro-alkanes, C10-C13
32	Chlorpyrifos	32 - Chlorpyrifos
19	Chromium and compounds (a	19 - Chromium and compounds (as Cr)
20	Copper and compounds (as C	20 - Copper and compounds (as Cu)
82	Cyanides (as total CN)	82 - Cyanides (as total CN)
33	DDT	33 - DDT
70	Di-(2-ethyl hexyl) phthalate (D	70 - Di-(2-ethyl hexyl) phthalate (DEHP)
35	Dichloromethane (DCM)	35 - Dichloromethane (DCM)
36	Dieldrin	36 - Dieldrin
37	Diuron	37 - Diuron
38	Endosulphan	38 - Endosulphan
39	Endrin	39 - Endrin
65	Ethyl benzene	65 - Ethyl benzene
66	Ethylene oxide	66 - Ethylene oxide
88	Fluoranthene	88 - Fluoranthene
83	Fluorides (as total F)	83 - Fluorides (as total F)
40	Halogenated organic compou	40 - Halogenated organic compounds (as AOX)
41	Heptachlor	41 - Heptachlor
90	Hexabromobiphenyl	90 - Hexabromobiphenyl
42	Hexachlorobenzene (HCB)	42 - Hexachlorobenzene (HCB)
43	Hexachlorobutadiene (HCBD)	43 - Hexachlorobutadiene (HCBD)
89	Isodrin	89 - Isodrin
67	Isoproturon	67 - Isoproturon
23	Lead and compounds (as Pb)	23 - Lead and compounds (as Pb)
45	Lindane	45 - Lindane
21	Mercury and compounds (as H	21 - Mercury and compounds (as Hg)
46	Mirex	46 - Mirex
68	Naphthalene	68 - Naphthalene
22	Nickel and compounds (as Ni)	22 - Nickel and compounds (as Ni)
07	Non-methane volatile organic	07 - Non-methane volatile organic compounds (NMVOC)
64	Nonylphenol and Nonylphenol	64 - Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)
87	Octylphenols and Octylphenol	87 - Octylphenols and Octylphenol ethoxylates
69	Organotin compounds (as tota	69 - Organotin compounds (as total Sn)
47	PCDD + PCDF (dioxins + fura	47 - PCDD + PCDF (dioxins + furans)(as Teq)
48	Pentachlorobenzene	48 - Pentachlorobenzene
49	Pentachlorophenol (PCP)	49 - Pentachlorophenol (PCP)
71	Phenols (as total C)	71 - Phenols (as total C)
50	Polychlorinated biphenyls (PC	50 - Polychlorinated biphenyls (PCBs)
72	Polycyclic aromatic hydrocarb	72 - Polycyclic aromatic hydrocarbons (PAHs)
51	Simazine	51 - Simazine
52	Tetrachloroethylene (PER)	52 - Tetrachloroethylene (PER)
53	Tetrachloromethane (TCM)	53 - Tetrachloromethane (TCM)
73	Toluene	73 - Toluene
12	Total nitrogen	12 - Total nitrogen
76	Total organic carbon (TOC) (a	76 - Total organic carbon (TOC) (as total C or COD/3)
13	Total phosphorus	13 - Total phosphorus
59	Toxaphene	59 - Toxaphene
74	Tributyltin and compounds	74 - Tributyltin and compounds
54	Trichlorobenzenes (TCBs)(all	54 - Trichlorobenzenes (TCBs)(all isomers)
57	Trichloroethylene	57 - Trichloroethylene
58	Trichloromethane	58 - Trichloromethane
77	Trifluralin	77 - Trifluralin
75	Triphenyltin and compounds	75 - Triphenyltin and compounds
60	Vinyl chloride	60 - Vinyl chloride
78	Xylenes	78 - Xylenes
24	Zinc and compounds (as Zn)	24 - Zinc and compounds (as Zn)

Emission Type : Offsite Transfers

PRTR Pollutants

Pollutant_Number	Pollutant_Name	Pollutant_Lookup
55	1,1,1-trichloroethane	55 - 1,1,1-trichloroethane
56	1,1,2,2-tetrachloroethane	56 - 1,1,2,2-tetrachloroethane
44	1,2,3,4,5,6-hexachlorocyclohe	44 - 1,2,3,4,5,6-hexachlorocyclohexane(HCH)
34	1,2-dichloroethane (EDC)	34 - 1,2-dichloroethane (EDC)
25	Alachlor	25 - Alachlor
26	Aldrin	26 - Aldrin
06	Ammonia (NH3)	06 - Ammonia (NH3)
61	Anthracene	61 - Anthracene
17	Arsenic and compounds (as A	17 - Arsenic and compounds (as As)
81	Asbestos	81 - Asbestos
27	Atrazine	27 - Atrazine
62	Benzene	62 - Benzene
91	Benzo(g,h,i)perylene	91 - Benzo(g,h,i)perylene
63	Brominated diphenylethers (P	63 - Brominated diphenylethers (PBDE)
18	Cadmium and compounds (as	18 - Cadmium and compounds (as Cd)
03	Carbon dioxide (CO2)	03 - Carbon dioxide (CO2)
02	Carbon monoxide (CO)	02 - Carbon monoxide (CO)

28	Chlordane	28 - Chlordane
29	Chlordecone	29 - Chlordecone
30	Chlorfenvinphos	30 - Chlorfenvinphos
79	Chlorides (as Cl)	79 - Chlorides (as Cl)
80	Chlorine and inorganic compo	80 - Chlorine and inorganic compounds (as HCl)
31	Chloro-alkanes, C10-C13	31 - Chloro-alkanes, C10-C13
15	Chlorofluorocarbons (CFCs)	15 - Chlorofluorocarbons (CFCs)
32	Chlorpyrifos	32 - Chlorpyrifos
19	Chromium and compounds (a	19 - Chromium and compounds (as Cr)
20	Copper and compounds (as C	20 - Copper and compounds (as Cu)
82	Cyanides (as total CN)	82 - Cyanides (as total CN)
33	DDT	33 - DDT
70	Di-(2-ethyl hexyl) phthalate (D	70 - Di-(2-ethyl hexyl) phthalate (DEHP)
35	Dichloromethane (DCM)	35 - Dichloromethane (DCM)
36	Dieldrin	36 - Dieldrin
37	Diuron	37 - Diuron
38	Endosulphan	38 - Endosulphan
39	Endrin	39 - Endrin
65	Ethyl benzene	65 - Ethyl benzene
66	Ethylene oxide	66 - Ethylene oxide
88	Fluoranthene	88 - Fluoranthene
83	Fluorides (as total F)	83 - Fluorides (as total F)
84	Fluorine and inorganic compo	84 - Fluorine and inorganic compounds (as HF)
40	Halogenated organic compou	40 - Halogenated organic compounds (as AOX)
16	Halons	16 - Halons
41	Heptachlor	41 - Heptachlor
90	Hexabromobiphenyl	90 - Hexabromobiphenyl
42	Hexachlorobenzene (HCB)	42 - Hexachlorobenzene (HCB)
43	Hexachlorobutadiene (HCBD)	43 - Hexachlorobutadiene (HCBD)
04	Hydro-fluorocarbons (HFCs)	04 - Hydro-fluorocarbons (HFCs)
14	Hydrochlorofluorocarbons (HC	14 - Hydrochlorofluorocarbons (HCFCs)
85	Hydrogen cyanide (HCN)	85 - Hydrogen cyanide (HCN)
89	Isodrin	89 - Isodrin
67	Isoproturon	67 - Isoproturon
23	Lead and compounds (as Pb)	23 - Lead and compounds (as Pb)
45	Lindane	45 - Lindane
21	Mercury and compounds (as H	21 - Mercury and compounds (as Hg)
01	Methane (CH4)	01 - Methane (CH4)
46	Mirex	46 - Mirex
68	Naphthalene	68 - Naphthalene
22	Nickel and compounds (as Ni)	22 - Nickel and compounds (as Ni)
08	Nitrogen oxides (NOx/NO2)	08 - Nitrogen oxides (NOx/NO2)
05	Nitrous oxide (N2O)	05 - Nitrous oxide (N2O)
07	Non-methane volatile organic	07 - Non-methane volatile organic compounds (NMVOC)
64	Nonylphenol and Nonylphenol	64 - Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)
87	Octylphenols and Octylphenol	87 - Octylphenols and Octylphenol ethoxylates
69	Organotin compounds (as tota	69 - Organotin compounds (as total Sn)
86	Particulate matter (PM10)	86 - Particulate matter (PM10)
47	PCDD + PCDF (dioxins + fura	47 - PCDD + PCDF (dioxins + furans)(as Teq)
48	Pentachlorobenzene	48 - Pentachlorobenzene
49	Pentachlorophenol (PCP)	49 - Pentachlorophenol (PCP)
09	Perfluorocarbons (PFCs)	09 - Perfluorocarbons (PFCs)
71	Phenols (as total C)	71 - Phenols (as total C)
50	Polychlorinated biphenyls (PC	50 - Polychlorinated biphenyls (PCBs)
72	Polycyclic aromatic hydrocarb	72 - Polycyclic aromatic hydrocarbons (PAHs)
51	Simazine	51 - Simazine
10	Sulphur hexafluoride (SF6)	10 - Sulphur hexafluoride (SF6)
11	Sulphur oxides (SOx/SO2)	11 - Sulphur oxides (SOx/SO2)
52	Tetrachloroethylene (PER)	52 - Tetrachloroethylene (PER)
53	Tetrachloromethane (TCM)	53 - Tetrachloromethane (TCM)
73	Toluene	73 - Toluene
12	Total nitrogen	12 - Total nitrogen
76	Total organic carbon (TOC) (a	76 - Total organic carbon (TOC) (as total C or COD/3)
13	Total phosphorus	13 - Total phosphorus
59	Toxaphene	59 - Toxaphene
74	Tributyltin and compounds	74 - Tributyltin and compounds
54	Trichlorobenzenes (TCBs)(all	54 - Trichlorobenzenes (TCBs)(all isomers)
57	Trichloroethylene	57 - Trichloroethylene
58	Trichloromethane	58 - Trichloromethane
77	Trifluralin	77 - Trifluralin
75	Triphenyltin and compounds	75 - Triphenyltin and compounds
60	Vinyl chloride	60 - Vinyl chloride
78	Xylenes	78 - Xylenes
24	Zinc and compounds (as Zn)	24 - Zinc and compounds (as Zn)

Emission Type : Land

PRTR Pollutants

Pollutant_Number	Pollutant_Name	Pollutant_Lookup
55	1,1,1-trichloroethane	55 - 1,1,1-trichloroethane
56	1,1,2,2-tetrachloroethane	56 - 1,1,2,2-tetrachloroethane
44	1,2,3,4,5,6-hexachlorocyclohe	44 - 1,2,3,4,5,6-hexachlorocyclohexane(HCH)
34	1,2-dichloroethane (EDC)	34 - 1,2-dichloroethane (EDC)
25	Alachlor	25 - Alachlor
26	Aldrin	26 - Aldrin
06	Ammonia (NH3)	06 - Ammonia (NH3)
61	Anthracene	61 - Anthracene

17	Arsenic and compounds (as A	17 - Arsenic and compounds (as As)
81	Asbestos	81 - Asbestos
27	Atrazine	27 - Atrazine
62	Benzene	62 - Benzene
91	Benzo(g,h,i)perylene	91 - Benzo(g,h,i)perylene
63	Brominated diphenylethers (P	63 - Brominated diphenylethers (PBDE)
18	Cadmium and compounds (as	18 - Cadmium and compounds (as Cd)
03	Carbon dioxide (CO2)	03 - Carbon dioxide (CO2)
02	Carbon monoxide (CO)	02 - Carbon monoxide (CO)
28	Chlordane	28 - Chlordane
29	Chlordecone	29 - Chlordecone
30	Chlorfenvinphos	30 - Chlorfenvinphos
79	Chlorides (as Cl)	79 - Chlorides (as Cl)
80	Chlorine and inorganic compo	80 - Chlorine and inorganic compounds (as HCl)
31	Chloro-alkanes, C10-C13	31 - Chloro-alkanes, C10-C13
15	Chlorofluorocarbons (CFCs)	15 - Chlorofluorocarbons (CFCs)
32	Chlorpyrifos	32 - Chlorpyrifos
19	Chromium and compounds (a	19 - Chromium and compounds (as Cr)
20	Copper and compounds (as C	20 - Copper and compounds (as Cu)
82	Cyanides (as total CN)	82 - Cyanides (as total CN)
33	DDT	33 - DDT
70	Di-(2-ethyl hexyl) phthalate (D	70 - Di-(2-ethyl hexyl) phthalate (DEHP)
35	Dichloromethane (DCM)	35 - Dichloromethane (DCM)
36	Dieldrin	36 - Dieldrin
37	Diuron	37 - Diuron
38	Endosulphan	38 - Endosulphan
39	Endrin	39 - Endrin
65	Ethyl benzene	65 - Ethyl benzene
66	Ethylene oxide	66 - Ethylene oxide
88	Fluoranthene	88 - Fluoranthene
83	Fluorides (as total F)	83 - Fluorides (as total F)
84	Fluorine and inorganic compo	84 - Fluorine and inorganic compounds (as HF)
40	Halogenated organic compou	40 - Halogenated organic compounds (as AOX)
16	Halons	16 - Halons
41	Heptachlor	41 - Heptachlor
90	Hexabromobiphenyl	90 - Hexabromobiphenyl
42	Hexachlorobenzene (HCB)	42 - Hexachlorobenzene (HCB)
43	Hexachlorobutadiene (HCBD)	43 - Hexachlorobutadiene (HCBD)
04	Hydro-fluorocarbons (HFCs)	04 - Hydro-fluorocarbons (HFCs)
14	Hydrochlorofluorocarbons (HC	14 - Hydrochlorofluorocarbons (HCFCs)
85	Hydrogen cyanide (HCN)	85 - Hydrogen cyanide (HCN)
89	Isodrin	89 - Isodrin
67	Isoproturon	67 - Isoproturon
23	Lead and compounds (as Pb)	23 - Lead and compounds (as Pb)
45	Lindane	45 - Lindane
21	Mercury and compounds (as H	21 - Mercury and compounds (as Hg)
01	Methane (CH4)	01 - Methane (CH4)
46	Mirex	46 - Mirex
68	Naphthalene	68 - Naphthalene
22	Nickel and compounds (as Ni)	22 - Nickel and compounds (as Ni)
08	Nitrogen oxides (NOx/NO2)	08 - Nitrogen oxides (NOx/NO2)
05	Nitrous oxide (N2O)	05 - Nitrous oxide (N2O)
07	Non-methane volatile organic	07 - Non-methane volatile organic compounds (NMVOC)
64	Nonylphenol and Nonylphenol	64 - Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)
87	Octylphenols and Octylphenol	87 - Octylphenols and Octylphenol ethoxylates
69	Organotin compounds (as tota	69 - Organotin compounds (as total Sn)
86	Particulate matter (PM10)	86 - Particulate matter (PM10)
47	PCDD + PCDF (dioxins + fura	47 - PCDD + PCDF (dioxins + furans)(as Teq)
48	Pentachlorobenzene	48 - Pentachlorobenzene
49	Pentachlorophenol (PCP)	49 - Pentachlorophenol (PCP)
09	Perfluorocarbons (PFCs)	09 - Perfluorocarbons (PFCs)
71	Phenols (as total C)	71 - Phenols (as total C)
50	Polychlorinated biphenyls (PC	50 - Polychlorinated biphenyls (PCBs)
72	Polycyclic aromatic hydrocarb	72 - Polycyclic aromatic hydrocarbons (PAHs)
51	Simazine	51 - Simazine
10	Sulphur hexafluoride (SF6)	10 - Sulphur hexafluoride (SF6)
11	Sulphur oxides (SOx/SO2)	11 - Sulphur oxides (SOx/SO2)
52	Tetrachloroethylene (PER)	52 - Tetrachloroethylene (PER)
53	Tetrachloromethane (TCM)	53 - Tetrachloromethane (TCM)
73	Toluene	73 - Toluene
12	Total nitrogen	12 - Total nitrogen
76	Total organic carbon (TOC) (a	76 - Total organic carbon (TOC) (as total C or COD/3)
13	Total phosphorus	13 - Total phosphorus
59	Toxaphene	59 - Toxaphene
74	Tributyltin and compounds	74 - Tributyltin and compounds
54	Trichlorobenzenes (TCBs)(all	54 - Trichlorobenzenes (TCBs)(all isomers)
57	Trichloroethylene	57 - Trichloroethylene
58	Trichloromethane	58 - Trichloromethane
77	Trifluralin	77 - Trifluralin
75	Triphenyltin and compounds	75 - Triphenyltin and compounds
60	Vinyl chloride	60 - Vinyl chloride
78	Xylenes	78 - Xylenes
24	Zinc and compounds (as Zn)	24 - Zinc and compounds (as Zn)

Licensed (Non-PRTR) Pollutants

Emission Type : Air

Pollutant_Number	Pollutant_Name	Pollutant_Lookup
201	1,2 trichloroethylene	201 - 1,2 trichloroethyle
241	2-Chloroethanol	241 - 2-Chloroethanol
202	2-methyoxyethanol	202 - 2-methyoxyethanc
301	Acetate	301 - Acetate
203	Acetic acid	203 - Acetic acid
247	Acetone	247 - Acetone
361	Acrylates	361 - Acrylates
369	Alkyl Phenol Ethoxyla	369 - Alkyl Phenol Etho
355	Aluminium	355 - Aluminium
205	Antimony (as Sb)	205 - Antimony (as Sb)
206	Benzene & toluene &	206 - Benzene & toluen
243	cis-1,2-dichloroethene	243 - cis-1,2-dichloroethene
207	Class B organics	207 - Class B organics
356	Cobalt	356 - Cobalt
208	Condenseable volatile	208 - Condenseable vol
310	Dimethylester	310 - Dimethylester
209	Dimethylformamide	209 - Dimethylformamide
245	Dimethylsulphate	245 - Dimethylsulphate
210	Dust	210 - Dust
211	Epichlorohydrin	211 - Epichlorohydrin
248	Ethanol	248 - Ethanol
212	Formaldehyde	212 - Formaldehyde
315	Formaldehyde	315 - Formaldehyde
213	Formic acid	213 - Formic acid
316	Hydrazine	316 - Hydrazine
214	Hydrogen bromide	214 - Hydrogen bromide
317	Hydrogen peroxide	317 - Hydrogen peroxide
215	Hydrogen sulphide	215 - Hydrogen sulphide
318	Hydrogen sulphide	318 - Hydrogen sulphide
216	Indicator Microorganis	216 - Indicator Microorganisms
319	Inorganic acids	319 - Inorganic acids
217	Iodinated compounds	217 - Iodinated compounds
357	Iron	357 - Iron
218	Isocyanate	218 - Isocyanate
246	Isopropyl Alcohol (IPA	246 - Isopropyl Alcohol (IPA)
320	Magnesium	320 - Magnesium
321	Manganese (as Mn)	321 - Manganese (as Mn)
219	MDI	219 - MDI
322	MDI as NCO group	322 - MDI as NCO group
220	Mercaptans	220 - Mercaptans
323	Methanol	323 - Methanol
367	Methyl Methacrylate	367 - Methyl Methacrylate
368	Molybdenum	368 - Molybdenum
325	Monochloramine	325 - Monochloramine
326	n-hexene	326 - n-hexene
221	Nitric acid (HNO3)	221 - Nitric acid (HNO3)
330	Organic solvents	330 - Organic solvents
222	Organic substances w	222 - Organic substances with photochemical ozone potential
331	Organohalogens	331 - Organohalogens
223	Ozone	223 - Ozone
333	Permethrin	333 - Permethrin
334	Pesticides	334 - Pesticides
337	Pharmaceutical active	337 - Pharmaceutical actives
338	Potassium	338 - Potassium
339	Preventol WB	339 - Preventol WB
370	Selenium	370 - Selenium
340	Semi-volatiles	340 - Semi-volatiles
354	Silver	354 - Silver
341	Sodium	341 - Sodium
342	Streptomycin	342 - Streptomycin
353	Sulphides	353 - Sulphides
239	Sulphuric Acid	239 - Sulphuric Acid
344	TA luft carcinogenic s	344 - TA luft carcinogenic substance class 3
224	TA Luft carcinogenic s	224 - TA Luft carcinogenic substances Class 1
225	TA Luft carcinogenic s	225 - TA Luft carcinogenic substances Class 2
226	TA Luft carcinogenic s	226 - TA Luft carcinogenic substances Class 3
227	TA Luft inorganic dust	227 - TA Luft inorganic dust particles class 1

Air Lookup	
From Row	4
To Row	89
Start Cell	3

Water Lookup	
From Row	92
To Row	192
Start Cell	91

Offsite Xfers Lookup	
From Row	195
To Row	276
Start Cell	194

Land Lookup	
From Row	279
To Row	279
Start Cell	278

228	TA Luft inorganic dust	228 - TA Luft inorganic dust particles class 2
229	TA Luft inorganic dust	229 - TA Luft inorganic dust particles class 3
230	TA Luft organic substa	230 - TA Luft organic substances class 1
231	TA Luft organic substa	231 - TA Luft organic substances class 2
232	TA Luft organic substa	232 - TA Luft organic substances class 3
371	Tellurium	371 - Tellurium
233	Thallium compounds	233 - Thallium compounds
358	Tin	358 - Tin
234	Toluene di-isocyanate	234 - Toluene di-isocyanate
235	Total acids	235 - Total acids
345	Total acids	345 - Total acids
242	Total Aldehydes (as C	242 - Total Aldehydes (as C)
347	Total heavy metals	347 - Total heavy metals
351	Total Organic Carbon	351 - Total Organic Carbon (as C)
352	Total Organic Carbon	352 - Total Organic Carbon (as Toluene)
244	Total Particulates	244 - Total Particulates
350	Undenatured botulinu	350 - Undenatured botulinum toxin
236	Vanadium (as V)	236 - Vanadium (as V)
237	Volatile organic comp	237 - Volatile organic compounds (as TOC)

Emission Type : Water

Pollutant_Number	Pollutant_Name	Pollutant_Lookup
380	2,4 Dichlorophenol (2,	380 - 2,4 Dichlorophenol (2,4 D)
394	2,6-Dichlorobenzamid	394 - 2,6-Dichlorobenzamide
301	Acetate	301 - Acetate
203	Acetic acid	203 - Acetic acid
376	Acetone	376 - Acetone
378	Acetronitrile	378 - Acetronitrile
361	Acrylates	361 - Acrylates
369	Alkyl Phenol Ethoxyla	369 - Alkyl Phenol Ethoxylates
355	Aluminium	355 - Aluminium
204	Amines	204 - Amines
238	Ammonia (as N)	238 - Ammonia (as N)
205	Antimony (as Sb)	205 - Antimony (as Sb)
373	Barium	373 - Barium
206	Benzene & toluene &	206 - Benzene & toluene & xylene (combined)
389	Benzo[a]pyrene	389 - Benzo[a]pyrene
390	Benzo[b]fluoranthene	390 - Benzo[b]fluoranthene
391	Benzo[k]fluoranthene	391 - Benzo[k]fluoranthene
302	Biocides	302 - Biocides
303	BOD	303 - BOD
374	Boron	374 - Boron
304	Bromide	304 - Bromide
305	Calcium	305 - Calcium
393	Carbon tetrachloride	393 - Carbon tetrachloride
243	cis-1,2-dichloroethene	243 - cis-1,2-dichloroethene
356	Cobalt	356 - Cobalt
306	COD	306 - COD
208	Condenseable volatile	208 - Condenseable volatile organic compounds
308	Detergents (as MBAS	308 - Detergents (as MBAS)
388	Dichlobenil	388 - Dichlobenil
381	Dichlorobenil	381 - Dichlorobenil
395	Dicofol	395 - Dicofol
309	Diesel range organics	309 - Diesel range organics
310	Dimethylester	310 - Dimethylester
245	Dimethylsulphate	245 - Dimethylsulphate
211	Epichlorohydrin	211 - Epichlorohydrin
377	Ethanol	377 - Ethanol
314	Fats, Oils and Grease	314 - Fats, Oils and Greases
212	Formaldehyde	212 - Formaldehyde
315	Formaldehyde	315 - Formaldehyde
213	Formic acid	213 - Formic acid
382	Glyphosate	382 - Glyphosate
396	Hexabromocyclodeca	396 - Hexabromocyclodecane (HBCD)
316	Hydrazine	316 - Hydrazine
366	Hydrocarbons	366 - Hydrocarbons
214	Hydrogen bromide	214 - Hydrogen bromide
317	Hydrogen peroxide	317 - Hydrogen peroxide
318	Hydrogen sulphide	318 - Hydrogen sulphide
392	Indeno[1,2,3-c,d]pyrer	392 - Indeno[1,2,3-c,d]pyrene
319	Inorganic acids	319 - Inorganic acids

357	Iron	357 - Iron
375	Isopropyl Alcohol (IPA	375 - Isopropyl Alcohol (IPA)
362	Kjeldahl Nitrogen	362 - Kjeldahl Nitrogen
383	Linuron	383 - Linuron
320	Magnesium	320 - Magnesium
321	Manganese (as Mn)	321 - Manganese (as Mn)
384	MCPA	384 - MCPA
322	MDI as NCO group	322 - MDI as NCO group
385	Mecoprop Total	385 - Mecoprop Total
323	Methanol	323 - Methanol
367	Methyl Methacrylate	367 - Methyl Methacrylate
324	Mineral oils	324 - Mineral oils
368	Molybdenum	368 - Molybdenum
325	Monochloramine	325 - Monochloramine
326	n-hexene	326 - n-hexene
327	Nitrate (as N)	327 - Nitrate (as N)
372	Nitrite (as N)	372 - Nitrite (as N)
328	Non-purgeable organi	328 - Non-purgeable organic compounds
329	Octafluropentanol	329 - Octafluropentanol
330	Organic solvents	330 - Organic solvents
331	Organohalogens	331 - Organohalogens
387	Ortho-phosphate (as I	387 - Ortho-phosphate (as P)
332	Ortho-phosphate (as I	332 - Ortho-phosphate (as PO4)
333	Permethrin	333 - Permethrin
334	Pesticides	334 - Pesticides
335	Petrol range organics	335 - Petrol range organics
397	PFOS	397 - PFOS
337	Pharmaceutical active	337 - Pharmaceutical actives
338	Potassium	338 - Potassium
339	Preventol WB	339 - Preventol WB
370	Selenium	370 - Selenium
340	Semi-volatiles	340 - Semi-volatiles
354	Silver	354 - Silver
341	Sodium	341 - Sodium
342	Streptomycin	342 - Streptomycin
343	Sulphate	343 - Sulphate
353	Sulphides	353 - Sulphides
364	Sulphites (as SO3)	364 - Sulphites (as SO3)
240	Suspended Solids	240 - Suspended Solids
371	Tellurium	371 - Tellurium
358	Tin	358 - Tin
345	Total acids	345 - Total acids
363	Total Dissolved Solids	363 - Total Dissolved Solids
398	Total Hardness (mg/l	398 - Total Hardness (mg/l CaCO3)
347	Total heavy metals	347 - Total heavy metals
351	Total Organic Carbon	351 - Total Organic Carbon (as C)
352	Total Organic Carbon	352 - Total Organic Carbon (as Toluene)
379	Total Oxidised Nitroge	379 - Total Oxidised Nitrogen (TON)
348	Total petroleum hydro	348 - Total petroleum hydrocarbons
350	Undenatured botulinu	350 - Undenatured botulinum toxin
386	Vanadium	386 - Vanadium
237	Volatile organic comp	237 - Volatile organic compounds (as TOC)

Emission Type : Offsite Transfers

Pollutant_Number	Pollutant_Name	Pollutant_Lookup
301	Acetate	301 - Acetate
203	Acetic acid	203 - Acetic acid
376	Acetone	376 - Acetone
378	Acetronitrile	378 - Acetronitrile
361	Acrylates	361 - Acrylates
369	Alkyl Phenol Ethoxyla	369 - Alkyl Phenol Ethoxylates
355	Aluminium	355 - Aluminium
204	Amines	204 - Amines
238	Ammonia (as N)	238 - Ammonia (as N)
205	Antimony (as Sb)	205 - Antimony (as Sb)
373	Barium	373 - Barium
206	Benzene & toluene &	206 - Benzene & toluene & xylene (combined)
302	Biocides	302 - Biocides
303	BOD	303 - BOD
374	Boron	374 - Boron
304	Bromide	304 - Bromide

305	Calcium	305 - Calcium
356	Cobalt	356 - Cobalt
306	COD	306 - COD
208	Condenseable volatile	208 - Condenseable volatile organic compounds
308	Detergents (as MBAS	308 - Detergents (as MBAS)
309	Diesel range organics	309 - Diesel range organics
310	Dimethylester	310 - Dimethylester
245	Dimethylsulphate	245 - Dimethylsulphate
211	Epichlorohydrin	211 - Epichlorohydrin
377	Ethanol	377 - Ethanol
314	Fats, Oils and Grease	314 - Fats, Oils and Greases
212	Formaldehyde	212 - Formaldehyde
315	Formaldehyde	315 - Formaldehyde
213	Formic acid	213 - Formic acid
316	Hydrazine	316 - Hydrazine
366	Hydrocarbons	366 - Hydrocarbons
214	Hydrogen bromide	214 - Hydrogen bromide
317	Hydrogen peroxide	317 - Hydrogen peroxide
318	Hydrogen sulphide	318 - Hydrogen sulphide
319	Inorganic acids	319 - Inorganic acids
357	Iron	357 - Iron
375	Isopropyl Alcohol (IPA	375 - Isopropyl Alcohol (IPA)
362	Kjeldahl Nitrogen	362 - Kjeldahl Nitrogen
320	Magnesium	320 - Magnesium
321	Manganese (as Mn)	321 - Manganese (as Mn)
322	MDI as NCO group	322 - MDI as NCO group
323	Methanol	323 - Methanol
367	Methyl Methacrylate	367 - Methyl Methacrylate
324	Mineral oils	324 - Mineral oils
368	Molybdenum	368 - Molybdenum
325	Monochloramine	325 - Monochloramine
326	n-hexene	326 - n-hexene
327	Nitrate (as N)	327 - Nitrate (as N)
372	Nitrite (as N)	372 - Nitrite (as N)
328	Non-purgeable organi	328 - Non-purgeable organic compounds
329	Octafluropentanol	329 - Octafluropentanol
330	Organic solvents	330 - Organic solvents
331	Organohalogens	331 - Organohalogens
387	Ortho-phosphate (as I	387 - Ortho-phosphate (as P)
332	Ortho-phosphate (as I	332 - Ortho-phosphate (as PO4)
333	Permethrin	333 - Permethrin
334	Pesticides	334 - Pesticides
335	Petrol range organics	335 - Petrol range organics
337	Pharmaceutical active	337 - Pharmaceutical actives
338	Potassium	338 - Potassium
339	Preventol WB	339 - Preventol WB
370	Selenium	370 - Selenium
340	Semi-volatiles	340 - Semi-volatiles
354	Silver	354 - Silver
341	Sodium	341 - Sodium
342	Streptomycin	342 - Streptomycin
343	Sulphate	343 - Sulphate
353	Sulphides	353 - Sulphides
364	Sulphites (as SO3)	364 - Sulphites (as SO3)
240	Suspended Solids	240 - Suspended Solids
371	Tellurium	371 - Tellurium
358	Tin	358 - Tin
345	Total acids	345 - Total acids
363	Total Dissolved Solids	363 - Total Dissolved Solids
398	Total Hardness (mg/l (	398 - Total Hardness (mg/l CaCO3)
347	Total heavy metals	347 - Total heavy metals
351	Total Organic Carbon	351 - Total Organic Carbon (as C)
352	Total Organic Carbon	352 - Total Organic Carbon (as Toluene)
348	Total petroleum hydro	348 - Total petroleum hydrocarbons
350	Undenatured botulinu	350 - Undenatured botulinum toxin
237	Volatile organic comp	237 - Volatile organic compounds (as TOC)

Emission Type : Land

Pollutant_Number	Pollutant_Name	Pollutant_Lookup

GroupCode	Description	2
01	WASTE RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS	21
02	WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING	23
03	WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD	133
04	WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES	135
05	WASTES FROM PETROLEUM REFINING, NATURAL GAS PURIFICATION AND PYROLYTIC TREATMENT OF COAL	973
06	WASTES FROM INORGANIC CHEMICAL PROCESSES	2
07	WASTES FROM ORGANIC CHEMICAL PROCESSES	21
08	WASTES FORM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS,) ADHESIVES, SEALANTS AND PRINTING INKS	
09	WASTES FROM THE PHOTOGRAPHIC INDUSTRY	
10	WASTES FROM THERMAL PROCESSES	
11	WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY	
12	WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS	
13	OIL WASTES AND WASTES OF LIQUID FUELS (except edible oils, and those in chapters 05, 12 and 19)	
14	WASTE ORGANIC SOLVENTS, REFRIGERANTS AND PROPELLANTS (except 07 and 08)	
15	WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED	
16	WASTES NOT OTHERWISE SPECIFIED IN THE LIST	
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)	
18	WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/OR RELATED RESEARCH (except kitchen and restaurant wastes not arising from immediate RESEARCH (except kitchen and restaurant wastes not arising from immediate health care)	
19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE	
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS	

GroupCode	SubGroupCode	Description
01	01	wastes from mineral excavation
01	03	wastes from physical and chemical processing of metalliferous minerals
01	04	wastes from physical and chemical processing of non-metalliferous minerals
01	05	drilling muds and other drilling wastes
02	01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
02	02	wastes from the preparation and processing of meat, fish and other foods of animal origin
02	03	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tabacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation
02	04	wastes from sugar processing
02	05	wastes from the dairy products industry
02	06	wastes from the baking and confectionery industry
02	07	wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)
03	01	wastes from wood processing and the production of panels and furniture
03	02	wastes from wood preservation
03	03	wastes from pulp, paper and cardboard production and processing
04	01	wastes from the leather and fur industry
04	02	wastes from the textile industry
05	01	wastes from petroleum refining
05	06	waste from the pyrolytic treatment of coal
05	07	waste from natural gas purification and transportation
06	01	wastes from the manufacture, formulation, supply and use (MFSU) of acids
06	02	wastes from the MFSU of bases
06	03	wastes from the MFSU of salts and their solutions and metallic oxides
06	04	metal-containing wastes other than those mentioned in 06 03
06	05	sludges from on-site effluent treatment
06	06	wastes from the MFSU of sulphur chemicals, sulphur chemical processes and desulphurisation processes
06	07	wastes from the MFSU of halogens and halogen chemical processes
06	08	wastes from the MFSU of silicon and silicon derivatives
06	09	wastes from the MFSU of phosphorus chemicals and phosphorous chemical processes
06	10	wastes from the MFSU of nitrogen chemicals, nitrogen chemical processes and fertiliser manufacture
06	11	wastes from the manufacture of inorganic pigments and opacificiers
06	13	wastes from inorganic chemical processes not otherwise specified
07	01	wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals
07	02	wastes from the MFSU of plastics, synthetic rubber and man-made fibres
07	03	wastes from the MFSU of organic dyes and pigments (except 06 11)
07	04	wastes from the MFSU of organic plant protection products (except 02 01 08 and 02 01 09), wood preserving agents (except 03 02) and other biocides
07	05	wastes from the MFSU of pharmaceuticals
07	06	wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics
07	07	wastes from the MFSU of fine chemicals and chemical products not otherwise specified
08	01	wastes from MFSU and removal of paint and varnish
08	02	wastes from MFSU of other coatings (including ceramic materials)
08	03	wastes from MFSU of printing inks
08	04	wastes from MFSU of adhesives and sealants (including waterproofing products)
08	05	wastes not otherwise specified in 08
09	01	wastes for the photographic industry
10	01	wastes from power stations and other combustion plants (except 19)
10	02	wastes from the iron and steel industry
10	03	wastes from aluminium thermal metallurgy
10	04	wastes from lead thermal metallurgy
10	05	wastes from zinc thermal metallurgy
10	06	wastes from copper thermal metallurgy
10	07	wastes from silver, gold and platinum thermal metalurgy
10	08	wastes from other non-ferous thermal metallurgy
10	09	wastes from casting of ferrous pieces
10	10	wastes from casting of non-ferrous pieces
10	11	wastes from manufacture of glass and glass products
10	12	wastes from manufacture of ceramic goods, bricks, tiles and construction products
10	13	wastes from manufacture of cement, lime and plaster and articles and products made from them
10	14	waste from crematoria
11	01	wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising)
11	02	waste from non-ferrous hydrometallurgical processes
11	03	sludges and solids from tempering processes
11	05	wastes from hot galvanising processes
12	01	wastes from shaping and physical and mechanical surface treatment of metals and plastics
12	03	wastes from water and steam degreasing processes (except 11)
13	01	waste hydraulic oils
13	02	waste engine, gear and lubricating oils
13	03	waste insulating and heat transmission oils
13	04	bilge oils
13	05	oil/water separator contents
13	07	wastes of liquid fuels
13	08	oil wastes not otherwise specified
14	06	waste organic solvents, refrigerants and foam/aerosol propellants
15	01	packaging (including separately collected municipal packaging waste)
15	02	absorbents, filter materials, wiping cloths and protective clothing
16	01	end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)
16	02	wastes from electrical and electronic equipment
16	03	off-specification batches and unused products
16	04	waste explosives
16	05	gases in pressure containers and discarded chemicals
16	06	batteries and accumulators
16	07	wastes from transport tank, storage tank and barrel cleaning (except 05 and 13)
16	08	spent catalysts
16	09	oxidising substances
16	10	aqueous liquid wastes destined for off-site treatment
16	11	waste linings and refractories
17	01	concrete, bricks, tiles and ceramics
17	02	wood, glass and plastic
17	03	bituminous mixtures, coal tar and tarred products
17	04	metals (including their alloys)
17	05	soil (including excavated soil from contaminated sites), stones and dredging spoil
17	06	insulation materials and asbestos-containing construction materials
17	08	gypsum-based construction material
17	09	other construction and demolition waste
18	01	wastes from natal care, diagnosis, treatment or prevention of disease in humans
18	02	wastes from research, diagnosis, treatment or prevention of disease involving animals
19	01	wastes from incineration or pyrolysis of waste
19	02	wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)
19	03	stabilised/solidified wastes (19)
19	04	vitrified waste and wastes from vitrification
19	05	wastes from aerobic treatment of solid wastes
19	06	wastes from anaerobic treatment of waste
19	07	landfill leachate
19	08	wastes from waste water treatment plants not otherwise specified
19	09	wastes from the preparation of water intended for human consumption or water for industrial use
19	10	wastes from shredding of metal-containing wastes
19	11	wastes from oil regeneration
19	12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19	13	wastes from soil and groundwater remediation
20	01	separately collected fractions (except 15 01)
20	02	garden and park wastes (including cemetery waste)
20	03	other municipal wastes

GroupCode	SubGroupCode	WasteCode	Description	Hazardous
01	01	01	wastes from mineral metalliferous excavation	No
01	01	02	wastes from mineral non-metalliferous excavation	No
01	03	04	acid-generating tailings from processing of sulphide ore	Yes
01	03	05	other tailings containing dangerous substances	Yes
01	03	06	tailings other than those mentioned in 01 03 04 and 01 03 05	No
01	03	07	other wastes containing dangerous substances from physical and chemical processing of metalliferou	Yes
01	03	08	dusty and powdery wastes other than those mentioned in 01 03 07	No
01	03	09	red mud from alumina production other than the wastes mentioned in 01 03 07	No
01	03	99	wastes not otherwise specified	No
01	04	07	waste containing dangerous substances from physical and chemical processing of nonmetalliferous n	Yes

01	04	08	waste gravel and crushed rocks other than those mentioned in 01 04 07	No
01	04	09	waste sand and clays	No
01	04	10	dusty and powdery wastes other than those mentioned in 01 04 07	No
01	04	11	wastes from potash and rock salt processing other than those mentioned in 01 04 07	No
01	04	12	tailings and other wastes from washing and cleaning of minerals other than those mentioned in 01 04	No
01	04	13	waste from stone cutting and sawing other than those mentioned in 01 04 07	No
01	04	99	waste not otherwise specified	No
01	05	04	freshwater drilling muds and wastes	No
01	05	05	oil-containing drilling muds and wastes	Yes
01	05	06	drilling muds and other drilling wastes containing dangerous substances	Yes
01	05	07	barite-containing drilling muds and wastes other than those mentioned in 01 05 05 and 0105 06	No
01	05	08	chloride-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06	No
01	05	99	wastes not otherwise specified	No
02	01	01	sludges from washing and cleaning	No
02	01	02	animal-tissue waste	No
02	01	03	plant-tissue waste	No
02	01	04	waste plastics (except packaging)	No
02	01	06	animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated c	No
02	01	07	waste from forestry	No
02	01	08	agrochemical waste containing dangerous substances	Yes
02	01	09	agrochemical waste other than those mentioned in 02 01 08	No
02	01	10	waste metal	No
02	01	99	wastes not otherwise specified	No
02	02	01	sludges from washing and cleaning	No
02	02	02	animal-tissue waste	No
02	02	03	materials unsuitable for consumption or processing	No
02	02	04	sludges from on-site effluent treatment	No
02	02	99	waste not otherwise specified	No
02	03	01	sludges from washing, cleaning, peeling, centrifuging and separation	No
02	03	02	waste from preserving agents	No
02	03	03	wastes from solvent extraction	No
02	03	04	materials unsuitable for consumption or processing	No
02	03	05	sludges from on-site effluent treatment	No
02	03	99	wastes not otherwise specified	No
02	04	01	soil from cleaning and washing beet	No
02	04	02	off-specification calcium carbonate	No
02	04	03	sludges from on-site effluent treatment	No
02	04	99	wastes not otherwise specified	No
02	05	01	materials unsuitable for consumption or processing	No
02	05	02	sludges from on-site effluent treatment	No
02	05	99	wastes not otherwise specified	No
02	06	01	materials unsuitable for consumption or processing	No
02	06	02	wastes from preserving agents	No
02	06	03	sludges from on-site effluent treatment	No
02	06	99	waste not otherwise specified	No
02	07	01	wastes from washing, cleaning and mechanical reduction of raw materials	No
02	07	02	wastes from spirits distillation	No
02	07	03	wastes from chemical treatment	No
02	07	04	materials unsuitable for consumption or processing	No
02	07	05	sludges from on-site effluent treatment	No
02	07	99	waste not otherwise specified	No
03	01	01	waste bark and cork	No
03	01	04	sawdust, shavings, cuttings, wood, particle board and veneer containing dangerous substances	Yes
03	01	05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04	No
03	01	99	wastes not otherwise specified	No
03	02	01	non-halogenated organic wood preservatives	Yes
03	02	02	organochlorinated wood preservatives	Yes
03	02	03	organometallic wood preservatives	Yes
03	02	04	inorganic wood preservatives	Yes
03	02	05	other wood preservatives containing dangerous substances	Yes
03	02	99	wood preservatives not otherwise specified	No
03	03	01	waste bark and wood	No
03	03	02	green liquor sludge (from recovery of cooking liquor)	No
03	03	05	de-inking sludges from paper recycling	No
03	03	07	mechanically separated rejects from pulping of waste paper and cardboard	No
03	03	08	wastes from sorting of paper and cardboard destined for recycling	No
03	03	09	lime mud waste	No
03	03	10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation	No
03	03	11	sludges from on-site effluent treatment other than those mentioned in 03 03 10	No
03	03	99	wastes not otherwise specified	No
04	01	01	fleshings and lime split wastes	No
04	01	02	liming waste	No
04	01	03	degreasing wastes containing solvents without a liquid phase	Yes
04	01	04	tanning liquor containing chromium	No
04	01	05	tanning liquor free of chromium	No
04	01	06	sludges, in particular from on-site effluent treatment containing chromium	No
04	01	07	sludges , in particular from on-site effluent treatment free of chromium	No
04	01	08	waste tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium	No
04	01	09	wastes from dressing and finishing	No
04	01	99	wastes not otherwise specified	No
04	02	09	wastes from composite materials (impregnated textile, elastomer, plastomer)	No
04	02	10	organic matter from natural products (for example grease, wax)	No
04	02	14	wastes from finishing containing organic solvents	Yes
04	02	15	wastes from finishing other than those mentioned in 04 02 14	No
04	02	16	dyestuffs and pigments containing dangerous substances	Yes
04	02	17	dyestuffs and pigments other than those mentioned in 04 02 16	No
04	02	19	sludges from on-site effluent treatment containing dangerous substances	Yes
04	02	20	sludges from on-site effluent treatment other than those mentioned in 04 02 19	No
04	02	21	wastes from unprocessed textile fibres	No
04	02	22	wastes from processed textile fibres	No
04	02	99	wastes not otherwise specified	No
05	01	02	desalter sludges	Yes
05	01	03	tank bottom sludges	Yes
05	01	04	acid alkyl sludges	Yes
05	01	05	oil spills	Yes
05	01	06	oily sludges from maintenance operations of the plant or equipment	Yes
05	01	07	acid tars	Yes
05	01	08	other tars	Yes
05	01	09	sludges from on-site effluent treatment containing dangerous substances	Yes
05	01	10	sludges from on-site effluent treatment other than those mentioned in 05 01 09	No
05	01	11	wastes from cleaning of fuels with bases	Yes
05	01	12	oil containing acids	Yes
05	01	13	boiler feedwater sludges	No
05	01	14	wastes from cooling columns	No
05	01	15	spent filter clays	Yes
05	01	16	sulphur-containing wastes from petroleum desulphurisation	No
05	01	17	bitumen	No
05	01	99	wastes not otherwise specified	No
05	06	01	acid tars	Yes
05	06	03	other tars	Yes
05	06	04	waste from cooling columns	No
05	06	99	wastes not otherwise specified	No
05	07	01	wastes containing mercury	Yes
05	07	02	wastes containing sulphur	No
05	07	99	wastes not otherwise specified	No
06	01	01	sulphuric acid and sulphurous acid	Yes
06	01	02	hydrochloric acid	Yes
06	01	03	hydrochloric acid	Yes
06	01	04	phosphoric and phosphorous acid	Yes
06	01	05	nitric acid and nitrous acid	Yes
06	01	06	other acids	Yes
06	01	99	wastes not otherwise specified	No
06	02	01	calcium hydroxide	Yes
06	02	03	ammonium hydroxide	Yes
06	02	04	sodium and potassium hydroxide	Yes
06	02	05	other bases	Yes
06	02	99	wastes not otherwise specified	No
06	03	11	solid salts and solutions containing cyanides	Yes
06	03	13	solid salts and solutions containing heavy metals	Yes
06	03	14	solid salts and solution other than those mentioned in 06 03 11 and 06 03 13	No
06	03	15	metallic oxides containing heavy metals	Yes
06	03	16	metallic oxides other than those mentioned in 06 03 15	No
06	03	99	wastes not otherwise specified	No
06	04	03	wastes containing arsenic	Yes
06	04	04	wastes containing mercury	Yes
06	04	05	wastes containing other heavy metals	Yes
06	04	99	wastes not otherwise specified	No
06	05	02	sludges from on-site effluent treatment containing dangerous solutions	Yes
06	05	03	sludges from onsite effluent treatment other than those mentioned in 06 05 02	No
06	06	02	wastes containing dangerous sulphides	Yes
06	06	03	wastes containing sulphides other than those mentioned in 06 06 02	No
06	06	99	wastes not otherwise specified	No
06	07	01	wastes containing asbestos from electrolysis	Yes
06	07	02	activated carbon from chlorine production	Yes

06	07	03	barium sulphate sludge containing mercury	Yes
06	07	04	solutions and acids, for example contact acid	Yes
06	07	99	wastes not otherwise specified	No
06	08	02	waste containing dangerous silicones	Yes
06	08	99	wastes not otherwise specified	No
06	09	02	phosphorus slag	No
06	09	03	calcium-based reaction wastes containing or contaminated with dangerous substances	Yes
06	09	04	calcuim-based reaction wastes other than those mentioned in 06 09 03	No
06	09	99	wastes not otherwise specified	No
06	10	02	wastes containing dangerous substances	Yes
06	10	99	wastes not otherwise specified	No
06	11	01	calcium-based reaction wastes from titanium dioxide production	No
06	11	99	wastes not otherwise specified	No
06	13	01	inorganic plant protection products, wood-preserving agents and other biocides	Yes
06	13	02	spent activated carbon (except 06 07 02)	Yes
06	13	03	carbon black	No
06	13	04	wastes from asbestos processing	Yes
06	13	05	soot	Yes
06	13	99	wastes not otherwise specified	No
07	01	01	aqueous washing liquids and mother liquors	Yes
07	01	03	organic halogenated solvents, washing liquids and mother liquors	Yes
07	01	04	other organic solvents, washing liquids and mother liquors	Yes
07	01	07	halogenated still bottoms and reaction residues	Yes
07	01	08	other still bottoms and reaction residues	Yes
07	01	09	halogenated filter cakes and spent absorbents	Yes
07	01	10	other filter cakes and spent absorbents	Yes
07	01	11	sludges from on-site effluent treatment containing dangerous substances	Yes
07	01	12	sludges from on-site effluent treatment other than those mentioned in 07 01 11	No
07	01	99	wastes not otherwise specified	No
07	02	01	aqueous washing liquids and mother liquors	Yes
07	02	03	organic halogenated solvents, washing liquids and mother liquors	Yes
07	02	04	other organic solvents, washing liquids and mother liquors	Yes
07	02	07	halogenated still bottoms and reaction residues	Yes
07	02	08	other still bottoms and reaction residues	Yes
07	02	09	halogenated filter cakes and spent absorbents	Yes
07	02	10	other filter cakes and spent absorbents	Yes
07	02	11	sludges from on-site effluent treatment containing dangerous substances	Yes
07	02	12	sludges from on-site effluent treatment other than those mentioned in 07 02 11	No
07	02	13	waste plastic	No
07	02	14	wastes from additives containing dangerous substances	Yes
07	02	15	wastes from additives other than those mentioned in 07 02 14	No
07	02	16	waste containing dangerous silicones	Yes
07	02	17	waste containing silicones other than those mentioned in 07 02 16	No
07	02	99	wastes not otherwise specified	No
07	03	01	aqueous washing liquids and mother liquors	Yes
07	03	03	organic halogenated solvents, washing liquids and mother liquors	Yes
07	03	04	other organic solvents, washing liquids and mother liquors	Yes
07	03	07	halogenated still bottoms and reaction residues	Yes
07	03	08	other still bottoms and reaction residues	Yes
07	03	09	halogenated filter cakes and spent absorbents	Yes
07	03	10	other filter cakes and spent absorbents	Yes
07	03	11	sludges from on-site effluent treatment containing dangerous substances	Yes
07	03	12	sludges from on-site effluent treatment other than those mentioned in 07 03 11	No
07	03	99	wastes not otherwise specified	No
07	04	01	aqueous washing liquids and mother liquors	Yes
07	04	03	organic halogenated solvents, washing liquids and mother liquors	Yes
07	04	04	other organic solvents, washing liquids and mother liquids	Yes
07	04	07	halogenated still bottoms and reaction residues	Yes
07	04	08	other still bottoms and reaction residues	Yes
07	04	09	halogenated filter cakes and spent absorbents	Yes
07	04	10	other filter cakes and spent absorbents	Yes
07	04	11	sludges from on-site effluent treatment containing dangerous substances	Yes
07	04	12	sludges from on-site effluent treatment other than those mentioned in 07 04 11	No
07	04	13	solid wastes containing dangerous substances	Yes
07	04	99	wastes not otherwise specified	No
07	05	01	aqueous washing liquids and mother liquors	Yes
07	05	03	organic halogenated solvents, washing liquids and mother liquors	Yes
07	05	04	other organic solvents, washing liquids and mother liquors	Yes
07	05	07	halogenated still bottoms and reaction residues	Yes
07	05	08	other still bottoms and reaction residues	Yes
07	05	09	halogenated filter cakes and spent absorbents	Yes
07	05	10	other filter cakes and spent absorbents	Yes
07	05	11	sludges from on-site effluent treatment containing dangerous substances	Yes
07	05	12	sludges from on-site effluent treatment other than those mentioned in 07 05 11	No
07	05	13	solid wastes containing dangerous substances	Yes
07	05	14	solid wastes other than those mentioned in 07 05 13	No
07	05	99	wastes not otherwise specified	No
07	06	01	aqueous washing liquids and mother liquors	Yes
07	06	03	organic halogenated solvents, washing liquids and mother liquors	Yes
07	06	04	other organic solvents, washing liquids and mother liquors	Yes
07	06	07	halogenated still bottoms and reaction residues	Yes
07	06	08	other sill bottoms and reaction residues	Yes
07	06	09	halogenated filter cakes and spent absorbents	Yes
07	06	10	other filter cakes and spent absorbents	Yes
07	06	11	sludges from on-site effluent treatment containing dangerous substances	Yes
07	06	12	sludges from on-site effluent treatment other than those mentioned in 07 06 11	No
07	06	99	wastes not otherwise specified	No
07	07	01	aqueous washing liquids and mother liquors	Yes
07	07	03	organic halogenated solvents, washing liquids and mother liquors	Yes
07	07	04	other organic solvents, washing liquids and mother liquors	Yes
07	07	07	halogenated still bottoms and reaction residues	Yes
07	07	08	other still bottoms and reaction residues	Yes
07	07	09	halogenated filter cakes and spent absorbents	Yes
07	07	10	other filter cakes and spent sbsorbents	Yes
07	07	11	sludges from on-site effluent treatment containing dangerous substances	Yes
07	07	12	sludges from on-site effluent treatment other than those mentioned in 07 07 11	No
07	07	99	wastes not otherwise specified	No
08	01	11	waste paint and varnish containing organic solvents or other dangerous substances	Yes
08	01	12	waste paint and varnish other than those mentioned in 08 01 11	No
08	01	13	sludges from paint or varnish containing organic solvents or other dangerous substances	Yes
08	01	14	sludges from paint or varnish other than those mentioned in 08 01 13	No
08	01	15	aqueous sludges containing paint or varnish containing organic solvents or other dangerous substanc	Yes
08	01	16	aqueous sludges containing paint or varnish other than those mentioned in 08 01 15	No
08	01	17	wastes from paint or varnish removal containing organic solvents or other dangerous substances	Yes
08	01	18	wastes from paint or varnish removal other than those mentioned in 08 01 17	No
08	01	19	aqueous suspensions containing paint or varnish containing organic solvents or other dangerous subs	Yes
08	01	20	aqueous suspensions containing paint or varnish other than those mentioned in 08 01 19	No
08	01	21	waste paint or varnish remover	Yes
08	01	99	wastes not otherwise specified	No
08	02	01	waste coating powders	No
08	02	02	aqueous sludges containing ceramic materials	No
08	02	03	aqueous suspensions containing ceramic materials	No
08	02	99	wastes not otherwise specified	No
08	03	07	aqueous sludges containing ink	No
08	03	08	aqueous liquid waste containing ink	No
08	03	12	waste ink containing dangerous substances	Yes
08	03	13	waste ink other than those mentioned in 08 03 12	No
08	03	14	ink sludges containing dangerous substances	Yes
08	03	15	ink sludges other than those mentioned in 08 03 14	No
08	03	16	waste etching solutions	Yes
08	03	17	waste printing toner containing dangerous substances	Yes
08	03	18	waste printing toner other than those mentioned in 08 03 17	No
08	03	19	disperse oil	Yes
08	03	99	wastes not otherwise specified	No
08	04	09	waste adhesives and sealants containing organic solvents or other dangerous substances	Yes
08	04	10	waste adhesives and sealants other than those mentioned in 08 04 09	No
08	04	11	adhesive and sealant sludges containing organic solvents or other dangerous substances	Yes
08	04	12	adhesive and sealant sludges other than those mentioned in 08 04 11	No
08	04	13	aqueous sludges containing adhesives or sealants containing organic solvents or other dangerous sul	Yes
08	04	14	aqueous sludges containing adhesives or sealants other than those mentioned in 08 04 13	No
08	04	15	aqueous liquid waste containing adhesives or sealants containing organic solvents or other dangerous	Yes
08	04	16	aqueous liquid waste containing adhesives or sealants other than those mentioned in 08 04 15	No
08	04	17	rosin oil	Yes
08	04	99	wastes not otherwise specified	No
08	05	01	waste isocyanates	Yes
09	01	01	water-based developer and activator solutions	Yes
09	01	02	water-based offset plate developer solutions	Yes
09	01	03	solvent-based developer solutions	Yes
09	01	04	fixed solutions	Yes
09	01	05	bleach solutions and bleach fixer solutions	Yes
09	01	06	wastes containing silver from on-site treatment of photographic wastes	Yes
09	01	07	photographic film and paper containing silver or silver compounds	No
09	01	08	photographic film and paper free of silver or silver compounds	No
09	01	10	single-use cameras without batteries	No

09	01	11	single-use cameras containing batteries included in 16 06 01, 16 06 02 or 16 06 03	Yes
09	01	12	single-use cameras containing batteries other than those mentioned in 09 01 11	No
09	01	13	aqueous liquid waste from on-site reclamation of silver other than those mentioned in 09 01 06	Yes
09	01	99	wastes not otherwise specified	No
10	01	01	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)	No
10	01	02	coal fly ash	No
10	01	03	fly ash from peat and untreated wood	No
10	01	04	oil fly ash and boiler dust	Yes
10	01	05	calcium-based reaction wastes from flue-gas desulphurisation in solid form	No
10	01	07	calcium-based reaction wastes from flue-gas desulphurisation in sludge form	No
10	01	09	sulphuric acid	Yes
10	01	13	fly ash from emulsified hydrocarbons used as fuel	Yes
10	01	14	bottom ash, slag and boiler dust from co-incineration containing dangerous substances	Yes
10	01	15	bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14	No
10	01	16	fly ash from co-incineration containing dangerous substances	Yes
10	01	17	fly ash from co-incineration other than those mentioned in 10 01 16	No
10	01	18	wastes from gas cleaning containing dangerous substances	Yes
10	01	19	wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18	No
10	01	20	sludges from on-site effluent treatment containing dangerous substances	Yes
10	01	21	sluges from on-site effluent treatment other than those mentioned in 10 01 20	No
10	01	22	aqueous sludges from boiler cleansing containing dangerous substances	Yes
10	01	23	aqueous sludges from boiler cleansing other than those mentioned in 10 01 22	No
10	01	24	sands from fluidised beds	No
10	01	25	wastes from fuel storage and preparation of coal-fired power plants	No
10	01	26	wastes from cooling-water treatment	No
10	01	99	wastes not otherwise specified	No
10	02	01	wastes from the processing of slag	No
10	02	02	unprocessed slag	No
10	02	07	solid wastes from gas treatment containing dangerous substances	Yes
10	02	08	solid wastes from gas treatment other than those mentioned in 10 02 07	No
10	02	10	mill scales	No
10	02	11	wastes from cooling-water treatment containing oil	Yes
10	02	12	waste from cooling-water treatment other than those mentioned in 10 02 11	No
10	02	13	sludges and filter cakes from gas treatment containing dangerous substances	Yes
10	02	14	sludges and filter cakes from gas treatment other than those mentioned in 10 02 13	No
10	02	15	other sludges and filter cakes	No
10	02	99	wastes not otherwise specified	No
10	03	02	anode scraps	No
10	03	04	primary production slags	Yes
10	03	05	waste alumina	No
10	03	08	salt slags from secondary production	Yes
10	03	09	black drosses from secondary production	Yes
10	03	15	skimmings that are flammable or emit, upon contact with water, flammable gases in dangerous quant	Yes
10	03	16	skimming other than those mentioned in 10 03 15	No
10	03	17	tar-containing wastes from anode manufacture	Yes
10	03	18	carbon-containing waste from anode manufacture other than those mentioned in 10 03 17	No
10	03	19	flue-gas dust containing dangerous substances	Yes
10	03	20	flue-gas dust other than those mentioned in 10 03 19	No
10	03	21	other particulates and dust (including ball-mill dust) containing dangerous substances	Yes
10	03	22	other particulates and dust (including ball-mill dust) other than those mentioned in 10 03 21	No
10	03	23	solid wastes from gas treatment containing dangerous substances	Yes
10	03	24	solid wastes from gas treatment other than those mentioned in 10 03 23	No
10	03	25	sludges and filter cakes from gas treatment containing dangerous substances	Yes
10	03	26	sludges and filter cakes from gas treatment other than those mentioned in 10 03 25	No
10	03	27	wastes from cooling-water treatment containing oil	Yes
10	03	28	wastes from cooling-water treatment other than those mentioned in 10 03 27	No
10	03	29	waste from treatment of salt slags and black drosses containing dangerous substances	Yes
10	03	30	wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29	No
10	03	99	wastes not otherwise specified	No
10	04	01	slags from primary and secondary production	Yes
10	04	02	dross and skimmings from primary and secondary production	Yes
10	04	03	calcium arsenate	Yes
10	04	04	flue-gas dust	Yes
10	04	05	other particulates and dust	Yes
10	04	06	solid wastes from gas treatment	Yes
10	04	07	sludges and filter cakes from gas treatment	Yes
10	04	09	wastes from cooling-water treatment containing oil	Yes
10	04	10	waste from cooling-water treatment other than those mentioned in 10 04 09	No
10	04	99	wastes not otherwise specified	No
10	05	01	slags from primary and secondary production	No
10	05	03	flue-gas dust	Yes
10	05	04	other particulates and dust	No
10	05	05	solid waste from gas treatment	Yes
10	05	06	sludges and filter cakes from gas treatment	Yes
10	05	08	wastes from cooling-water treatment containing oil	Yes
10	05	09	wastes from cooling-water treatment other than those mentioned in 10 05 08	No
10	05	10	dross and skimmings that are flammable or emit, upon contact with water, flammable gases in dange	Yes
10	05	11	dross and skimmings other than those mentioned in 10 05 10	No
10	05	99	wastes not otherwise specified	No
10	06	01	slags from primary and secondary production	No
10	06	02	dross and skimmings from primary and secondary production	No
10	06	03	flue-gas dust	Yes
10	06	04	other particulates and dust	No
10	06	06	solid wastes from gas treatment	Yes
10	06	07	sludges and filter cakes from has treatment	Yes
10	06	09	wastes from cooling-water treatment containing oil	Yes
10	06	10	waste from cooling-water treatment other than those mentioned in 10 06 09	No
10	06	99	wastes not otherwise specified	No
10	07	01	slags from primary and secondary production	No
10	07	02	dross and skimmings from primary and secondary production	No
10	07	03	solid wastes from gas treatment	No
10	07	04	other particultes and dust	No
10	07	05	sludges and filter cakes from gas treatment	No
10	07	07	wastes from cooling-water treatment containing oil	Yes
10	07	08	wastes from cooling-water treatment other than those mentioned in 10 07 07	No
10	07	99	wastes not otherwise specified	No
10	08	04	particulates and dust	No
10	08	08	salt slag from primary and secondary production	Yes
10	08	09	other slags	No
10	08	10	dross and skimming that are flammable or emit, upon the contact with water, flammable gases in dan	Yes
10	08	11	dross and skimmings other than those mentioned in 10 08 10	No
10	08	12	tar-containing waste from anode manufacture	Yes
10	08	13	carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12	No
10	08	14	anode scrap	No
10	08	15	flue-gas dust containing dangerous substances	Yes
10	08	16	flue-gas dust other than those mentioned in 10 08 15	No
10	08	17	sludges and filter cakes from flue-gas treatment containing dangerous substances	Yes
10	08	18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17	No
10	08	19	wastes from cooling-water treatment containing oil	Yes
10	08	20	wastes from cooling-water treatment other than those mentioned in 10 08 19	No
10	08	99	wastes not otherwise specified	No
10	09	03	furnace slag	No
10	09	05	casting cores and moulds which have not undergone pouring containing dangerous substances	Yes
10	09	06	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05	No
10	09	07	casting cores and moulds which have undergone pouring containing dangerous substances	Yes
10	09	08	casting cores and moulds have undergone pouring other than those mentioned in 10 09 07	No
10	09	09	flue-gas dust containing dangerous substances	Yes
10	09	10	flue-gas dust other than those mentioned in 10 09 09	No
10	09	11	other particulates containing dangerous substances	Yes
10	09	12	other particulates other than those mentioned in 10 09 11	No
10	09	13	waste binders containing dangerous substances	Yes
10	09	14	waste binders other than those mentioned in 10 09 13	No
10	09	15	waste crack-indicating agent containing dangerous substances	Yes
10	09	16	waste crack-indicating agent other than those mentioned in 10 09 15	No
10	09	99	wastes not otherwise specified	No
10	10	03	furnace slag	No
10	10	05	casting cores and moulds which have not undergone pouring, containing dangerous substances	Yes
10	10	06	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05	No
10	10	07	casting cores and moulds which have undergone pouring, containing dangerous substances	Yes
10	10	08	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07	No
10	10	09	flue-gas dust containing dangerous substances	Yes
10	10	10	flue-gas dust other than those mentioned in 10 10 09	No
10	10	11	other particulates containing dangerous substances	Yes
10	10	12	other particulates other than those mentioned in 10 10 11	No
10	10	13	waste binders containing dangerous substances	Yes
10	10	14	waste binders other than those mentioned in 10 10 13	No
10	10	15	waste crack-indicating agent containing dangerous substances	Yes
10	10	16	waste crack-indicating agent other than those mentioned in 10 10 15	No
10	10	99	wastes not otherwise specified	No
10	11	03	waste glass-based fibrous materials	No
10	11	05	particulates and dust	No
10	11	09	waste preparation mixture before thermal processing, containing dangerous substances	Yes
10	11	10	waste preparation mixture before thermal processing, other than those mentioned in 10 11 9	No
10	11	11	waste glass in small particles and glass powder containing heavy metals (for example from cathode r	Yes

10	11	12	waste glass other than those mentioned in 10 11 11	No
10	11	13	glass-polishing and -grinding sludge containing dangerous substances	Yes
10	11	14	glass-polishing and -grinding sludge other than those mentioned in 10 11 13	No
10	11	15	solid wastes from flue-gas treatment containing dangerous substances	Yes
10	11	16	solid wastes from flue-gas treatment other than those mentioned in 10 11 15	No
10	11	17	sludges and filter cakes from flue-gas treatment containing dangerous substances	Yes
10	11	18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 11 17	No
10	11	19	solid wastes from on-site effluent treatment containing dangerous substances	Yes
10	11	20	solid wastes from on-site effluent treatment other than those mentioned in 10 11 19	No
10	11	99	wastes not otherwise specified	No
10	12	01	waste preparation mixture before thermal processing	No
10	12	03	particulates and dust	No
10	12	05	sludges and filter cakes from gas treatment	No
10	12	06	discarded moulds	No
10	12	08	waste ceramics, bricks, tiles and construction products (after thermal processing)	No
10	12	09	solid wastes from gas treatment containing dangerous substances	Yes
10	12	10	solid wastes from gas treatment other than those mentioned in 10 12 09	No
10	12	11	wastes from glazing containing heavy metals	Yes
10	12	12	wastes from glazing other than those mentioned in 10 12 11	No
10	12	13	sludge from on-site effluent treatment	No
10	12	99	wastes not otherwise specified	No
10	13	01	waste preparation mixture before thermal processing	No
10	13	04	wastes from calcination and hydration of lime	No
10	13	06	particulates and dust (except 10 13 12 and 10 13 13)	No
10	13	07	sludges and filter cakes from gas treatment	No
10	13	09	wastes from asbestos-cement manufacture containing asbestos	Yes
10	13	10	wastes from asbestos-cement manufacture other than those mentioned in 10 13 09	No
10	13	11	wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 1(	No
10	13	12	solid wastes from gas treatment containing dangerous substances	Yes
10	13	13	solid wastes from gas treatment other than those mentioned in 10 13 12	No
10	13	14	waste concrete and concrete sludge	No
10	13	99	wastes not otherwise specified	No
10	14	01	waste from gas cleaning containing mercury	Yes
11	01	05	pickling acids	Yes
11	01	06	acids not otherwise specified	Yes
11	01	07	pickling bases	Yes
11	01	08	phosphatising sludges	Yes
11	01	09	sludges and filter cakes containing dangerous substances	Yes
11	01	10	sludges and filter cakes other than those mentioned in 11 01 09	No
11	01	11	aqueous rinsing liquids containing dangerous substances	Yes
11	01	12	aqueous rinsing liquids other than those mentioned in 11 01 11	No
11	01	13	degreasing wastes containing dangerous substances	Yes
11	01	14	degreasing wastes other than those mentioned in 11 01 13	No
11	01	15	eluate and sludges from membrane systems or ion exchange systems containing dangerous substan(	Yes
11	01	16	saturated or spent ion exchange resins	Yes
11	01	98	other wastes containing dangerous substances	Yes
11	01	99	wastes not otherwise specified	No
11	02	02	sludges from zinc hydrometallurgy (including jarosite, goethite)	Yes
11	02	03	wastes from the production of anodes for aqueous electrolytical processes	No
11	02	05	wastes from copper hydrometallurgical processes containing dangerous substances	Yes
11	02	06	wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05	No
11	02	07	other wastes containing dangerous substances	Yes
11	02	99	wastes not otherwise specified	No
11	03	01	waste containing cyanide	Yes
11	03	02	other wastes	Yes
11	05	01	hard zinc	No
11	05	02	zinc ash	No
11	05	03	solid wastes from gas treatment	Yes
11	05	04	spent flux	Yes
11	05	99	wastes not otherwise specified	No
12	01	01	ferrous metal filings and turnings	No
12	01	02	ferrous metal dust and particles	No
12	01	03	non-ferrous metal filings and turnings	No
12	01	04	non-ferrous metal dust and particles	No
12	01	05	plastics shavings and turnings	No
12	01	06	mineral-based machining oils containing halogens (except emulsions and solutions)	Yes
12	01	07	mineral-based machining oils free of halogens (except emulsions and solutions)	Yes
12	01	08	machining emulsions and solutions containing halogens	Yes
12	01	09	machining emulsions and solutions free of halogens	Yes
12	01	10	synthetic machining oils	Yes
12	01	12	spent waxes and fats	Yes
12	01	13	welding wastes	No
12	01	14	machining sludges containing dangerous substances	Yes
12	01	15	machining sludges other than those mentioned in 12 01 14	No
12	01	16	waste blasting material containing dangerous substances	Yes
12	01	17	waste blasting material other than those mentioned in 12 01 16	No
12	01	18	metal sludge (grinding, honing and lapping sludge) containing oil	Yes
12	01	19	readily biodegradable machining oil	Yes
12	01	20	spent grinding bodies and grinding materials containing dangerous substances	Yes
12	01	21	spent grinding bodies and grinding materials other than those mentioned in 12 01 20	No
12	01	99	wastes not otherwise specified	No
12	03	01	aqueous washing liquids	Yes
12	03	02	steam degreasing wastes	Yes
13	01	01	hydraulic oils, containing PCBs (15)	Yes
13	01	04	chlorinated emulsions	Yes
13	01	05	non-chlorinated emulsions	Yes
13	01	09	mineral-based chlorinated hydraulic oils	Yes
13	01	10	mineral-based non-chlorinated hydraulic oils	Yes
13	01	11	synthetic hydraulic oils	Yes
13	01	12	readily biodegradable hydraulic oils	Yes
13	01	13	other hydraulic oils	Yes
13	02	04	mineral-based chlorinated engine, gear and lubricating oils	Yes
13	02	05	mineral-based non-chlorinated engine, gear and lubricating oils	Yes
13	02	06	synthetic engine, gear and lubricating oils	Yes
13	02	07	readily biodegradable engine, gear and lubricating oils	Yes
13	02	08	other engine, gear and lubricating oils	Yes
13	03	01	insulating or heat transmission oils containing PCBs	Yes
13	03	06	mineral-based chlorinated insulating and heat transmission oils other than those mentioned in 13 03 (	Yes
13	03	07	mineral-based non-chlorinated insulating and heat transmission oils	Yes
13	03	08	synthetic insulating and heat transmission oils	Yes
13	03	09	readily biodegradable insulating and heat transmission oils	Yes
13	03	10	other insulating and heat transmission oils	Yes
13	04	01	bilge oils from inland navigation	Yes
13	04	02	bilge oils from jetty sewers	Yes
13	04	03	bilge oils from other navigation	Yes
13	05	01	solids from grit chambers and oil/water separators	Yes
13	05	02	sludges from oil/water separators	Yes
13	05	03	interceptor sludges	Yes
13	05	06	oil from oil/water separators	Yes
13	05	07	oily water from oil/water separators	Yes
13	05	08	mixtures of wastes from grit chambers and oil/water separators	Yes
13	07	01	fuel oil and diesel	Yes
13	07	02	petrol	Yes
13	07	03	other fuels (including mixtures)	Yes
13	08	01	desalter sludges or emulsions	Yes
13	08	02	other emulsions	Yes
13	08	99	wastes not otherwise specified	Yes
14	06	01	chlorofluorocarbons, HCFC, HFC	Yes
14	06	02	other halogenated solvents and solvent mixtures	Yes
14	06	03	other solvents and solvent mixtures	Yes
14	06	04	sludges or solid wastes containing halogenated solvents	Yes
14	06	05	sludges or solid wastes containing other solvents	Yes
15	01	01	paper and cardboard packaging	No
15	01	02	plastic packaging	No
15	01	03	wooden packaging	No
15	01	04	metallic packaging	No
15	01	05	composite packaging	No
15	01	06	mixed packaging	No
15	01	07	glass packaging	No
15	01	09	textile packaging	No
15	01	10	packaging containing residues of or contaminated by dangerous substances	Yes
15	01	11	metallic packaging containing a dangerous solid porous matrix (for example asbestos), including emp	Yes
15	02	02	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective cloth	Yes
15	02	03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02	No
16	01	03	end-of-life tyres	No
16	01	04	end-of-life vehicles	Yes
16	01	06	end-of-life vehicles, containing neither liquids nor other hazardous components	No
16	01	07	oil filters	Yes
16	01	08	components containing mercury	Yes
16	01	09	components containing PCBs	Yes
16	01	10	explosive components (for example air bags)	Yes
16	01	11	brake pads containing asbestos	Yes
16	01	12	brake pads other than those mentioned in 16 01 11	No
16	01	13	brake fluids	Yes

16	01	14	antifreeze fluids containing dangerous substances	Yes
16	01	15	antifreeze fluids other than those mentioned in 16 01 14	No
16	01	16	tanks for liquefied gas	No
16	01	17	ferrous metal	No
16	01	18	non-ferrous metal	No
16	01	19	plastic	No
16	01	20	glass	No
16	01	21	hazardous components other than those mentioned in 16 01 07 to 16 01 11 and 16 01 13 and 16 01 1	Yes
16	01	22	components not otherwise specified	No
16	01	99	wastes not otherwise specified	No
16	02	09	transformers and capacitors containing PCBs	Yes
16	02	10	discarded equipment containing or contaminated by PCBs other than those mentioned in 16 02 09	Yes
16	02	11	discarded equipment containing chlorofluorocarbons, HCFC, HFC	Yes
16	02	12	discarded equipment containing free asbestos	Yes
16	02	13	discarded equipment containing hazardous components (16) other than those mentioned in 16 02 09	Yes
16	02	14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13	No
16	02	15	hazardous components removed from discarded equipment	Yes
16	02	16	components removed from discarded equipment other than those mentioned in 16 02 15	No
16	03	03	inorganic wastes containing dangerous substances	Yes
16	03	04	inorganic wastes other than those mentioned in 16 03 03	No
16	03	05	organic wastes containing dangerous substances	Yes
16	03	06	organic wastes other than those mentioned in 16 03 05	No
16	04	01	waste ammunition	Yes
16	04	02	fireworks wastes	Yes
16	04	03	other waste explosives	Yes
16	05	04	gases in pressure containers (including halons) containing dangerous substances	Yes
16	05	05	gases in pressure containers other than those mentioned in 16 05 04	No
16	05	06	laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laborat	Yes
16	05	07	discarded inorganic chemicals consisting of or containing dangerous substances	Yes
16	05	08	discarded organic chemicals consisting of or containing dangerous substances	Yes
16	05	09	discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08	No
16	06	01	lead batteries	Yes
16	06	02	Ni-Cd batteries	Yes
16	06	03	mercury-containing batteries	Yes
16	06	04	alkaline batteries (except 16 06 03)	No
16	06	05	other batteries and accumulators	No
16	06	06	separately collected electrolyte from batteries and accumulators	Yes
16	07	08	wastes containing oil	Yes
16	07	09	wastes containing other dangerous substances	Yes
16	07	99	wastes not otherwise specified	No
16	08	01	spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 0	No
16	08	02	spent catalysts containing dangerous transition metals (17) or dangerous transition metal compounds	Yes
16	08	03	spent catalysts containing transition metals or transition metal compounds not otherwise specified	No
16	08	04	spent fluid catalytic cracking catalysts (except 16 08 07)	No
16	08	05	spent catalysts containing phosphoric acid	Yes
16	08	06	spent liquids used as catalysts	Yes
16	08	07	spent catalysts contaminated with dangerous substances	Yes
16	09	01	permanganates, for example potassium permanganate	Yes
16	09	02	chromates, for example potassium chromate, potassium or sodium dichromate	Yes
16	09	03	peroxides, for example hydrogen peroxide	Yes
16	09	04	oxidising substances, not otherwise specified	Yes
16	10	01	aqueous liquid wastes containing dangerous substances	Yes
16	10	02	aqueous liquid wastes other than those mentioned in 16 10 01	No
16	10	03	aqueous concentrates containing dangerous substances	Yes
16	10	04	aqueous concentrates other than those mentioned in 16 10 03	No
16	11	01	carbon-based linings and refractories from metallurgical processes containing dangerous substances	Yes
16	11	02	carbon-based linings and refractories fronm metallurgical processes other than those mentioned in 16	No
16	11	03	other linings and refractories from metallurgical processes containing dangerous substances	Yes
16	11	04	other linings and refractories from metallurgical processes other than those mentioned in 16 11 03	No
16	11	05	linings and refractories from non-metallurgical processes containing dangerous substances	Yes
16	11	06	linings and refractories from non-metallurgical processes other than those mentioned in 16 11 05	No
17	01	01	concrete	No
17	01	02	bricks	No
17	01	03	tiles and ceramics	No
17	01	06	mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing dangerous substa	Yes
17	01	07	mixture of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	No
17	02	01	wood	No
17	02	02	glass	No
17	02	03	plastic	No
17	02	04	glass, plastic and wood containing or contaminated with dangerous substances	Yes
17	03	01	bituminous mixtures containing coal tar	Yes
17	03	02	bituminous mixtures containing other than those mentioned in 17 03 01	No
17	03	03	coal tar and tarred products	Yes
17	04	01	copper, bronze, brass	No
17	04	02	aluminium	No
17	04	03	lead	No
17	04	04	zinc	No
17	04	05	iron and steel	No
17	04	06	tin	No
17	04	07	mixed metals	No
17	04	09	metal waste contaminated with dangerous substances	Yes
17	04	10	cables containing oil, coal tar and other dangerous substances	Yes
17	04	11	cables other than those mentioned in 17 04 10	No
17	05	03	soil and stones containing dangerous substances	Yes
17	05	04	soil and stones other than those mentioned in 17 05 03	No
17	05	05	dredging spoil containing dangerous substances	Yes
17	05	06	dredging spoil other than those mentioned 17 05 05	No
17	05	07	track ballast containing dangerous substances	Yes
17	05	08	track ballast other than those mentioned in 17 05 07	No
17	06	01	insulation materials containing asbestos	Yes
17	06	03	other insulation materials consisting of or containing dangerous substances	Yes
17	06	04	insulation materials other than those mentioned in 17 06 01 and 17 06 03	No
17	06	05	construction materials containing asbestos (18)	Yes
17	08	01	gypsum-based construction materials contaminated with dangerous substances	Yes
17	08	02	gypsum-based construction materials other than those mentioned in 17 08 01	No
17	09	01	construction and demolition wastes containing mercury	Yes
17	09	02	construction and demolition wastes containing pcb (for example pcb-containing sealants, pcb-contain	Yes
17	09	03	other construction and demolition wastes (including mixed wastes) containing dangerous substances	Yes
17	09	04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 0	No
18	01	01	sharps (except 18 01 03)	No
18	01	02	body parts and organs including blood bags and blood preserves (except 18 01 03)	No
18	01	03	wastes whose collection and disposal is subject to special requirements in order to prevent infection	Yes
18	01	04	wastes whose collection and disposal is not subject to special requirements in order to prevent infecti	No
18	01	06	chemicals consisting of or containing dangerous substances	Yes
18	01	07	chemicals other than those mentioned in 18 01 06	No
18	01	08	cytotoxic and cytostatic medicines	Yes
18	01	09	medicines other than those mentioned in 18 01 08	No
18	01	10	amalgam waste from dental care	Yes
18	02	01	sharps except (18 02 02)	No
18	02	02	wastes whose collection and disposal is subject to special requirements in order to prevent infection	Yes
18	02	03	wastes whose collection and disposal is not subject to special requirements in order to prevent infecti	No
18	02	05	chemicals consisting of or containing dangerous substances	Yes
18	02	06	chemicals other than those mentioned in 18 02 05	No
18	02	07	cytotoxic and cytostatic medicines	Yes
18	02	08	medicines other than those mentioned in 18 02 07	No
19	01	02	ferrous materials removed from bottom ash	No
19	01	05	filter cake from gas treatment	Yes
19	01	06	aqueous liquid wastes from gas treatment and other aqueous liquid wastes	Yes
19	01	07	solid wastes from gas treatment	Yes
19	01	10	spent activated carbon from flue-gas treatment	Yes
19	01	11	bottom ash and slag containing dangerous substances	Yes
19	01	12	bottom ash and slag other than those mentioned in 19 01 11	No
19	01	13	fly ash containing dangerous substances	Yes
19	01	14	fly ash other than those mentioned in 19 01 13	No
19	01	15	boiler dust containing dangerous substances	Yes
19	01	16	boiler dust other than those mentioned in 19 01 15	No
19	01	17	pyrolysis wastes containing dangerous substances	Yes
19	01	18	pyrolysis wastes other than those mentioned in 19 01 17	No
19	01	19	sands from fluidised beds	No
19	01	99	wastes not otherwise specified	No
19	02	03	premixed wastes composed only of non-hazardous wastes	No
19	02	04	premixed wastes composed of at least one hazardous waste	Yes
19	02	05	sludges from physico/chemical treatment containing dangerous substances	Yes
19	02	06	sludges from physico/chemical treatment other than those mentioned in 19 02 05	No
19	02	07	oil and concentrates from separation	Yes
19	02	08	liquid combustible wastes containing dangerous substances	Yes
19	02	09	solid combustible wastes containing dangerous substances	Yes
19	02	10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09	No
19	02	11	other wastes containing dangerous substances	Yes
19	02	99	wastes not otherwise specified	No
19	03	04	wastes marked as hazardous, partly (20) stabilised	Yes
19	03	05	stabilised wastes other than those mentioned in 19 03 04	No
19	03	06	wastes marked as hazardous, solidified	Yes
19	03	07	solidified wastes other than those mentioned in 19 03 06	No

19	04	01	vitrified waste	No
19	04	02	fly ash and other flue-gas treatment wastes	Yes
19	04	03	non-vitrified solid phase	Yes
19	04	04	aqueous liquid wastes from vitrified waste tempering	No
19	05	01	non-composted fraction of municipal and similar wastes	No
19	05	02	non-composted fraction of animal and vegetable waste	No
19	05	03	off-specification compost	No
19	05	99	wastes not otherwise specified	No
19	06	03	liquor from anaerobic treatment of municipal waste	No
19	06	04	digestate from anaerobic treatment of municipal waste	No
19	06	05	liquor from anaerobic treatment of animal and vegetable waste	No
19	06	06	digestate from anaerobic treatment of animal and vegetable waste	No
19	06	99	wastes not otherwise specified	No
19	07	02	landfill leachate containing dangerous substances	Yes
19	07	03	landfill leachate other than those mentioned in 19 07 02	No
19	08	01	screenings	No
19	08	02	waste from desanding	No
19	08	05	sludges from treatment of urban waste water	No
19	08	06	saturated or spent ion exchange resins	Yes
19	08	07	solutions and sludges from regeneration of ion exchangers	Yes
19	08	08	membrane system waste containing heavy metals	Yes
19	08	09	grease and oil mixture from oil/water separation containing only edible oil and fats	No
19	08	10	grease and oil mixture from oil/water separation other than those mentioned in 19 08 09	Yes
19	08	11	sludges containing dangerous substances from biological treatment of industrial waste water	Yes
19	08	12	sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11	No
19	08	13	sludges containing dangerous substances from other treatment of industrial waste water	Yes
19	08	14	sludges from other treatment of industrial waste water other than those mentioned in 19 08 13	No
19	08	99	wastes not otherwise specified	No
19	09	01	solid waste from primary filtration and screenings	No
19	09	02	sludges from water clarification	No
19	09	03	sludges from decarbonation	No
19	09	04	spent activated carbon	No
19	09	05	saturated or spent ion exchange resins	No
19	09	06	solutions and sludges from regeneration of ion exchangers	No
19	09	99	wastes not otherwise specified	No
19	10	01	iron and steel waste	No
19	10	02	non-ferrous waste	No
19	10	03	fluff-light fraction and dust containing dangerous substances	Yes
19	10	04	fluff-light fraction and dust other than those mentioned in 19 10 03	No
19	10	05	other fractions containing dangerous substances	Yes
19	10	06	other fractions other than those mentioned in 19 10 05	No
19	11	01	spent filter clays	Yes
19	11	02	acid tars	Yes
19	11	03	aqueous liquid wastes	Yes
19	11	04	wastes from cleaning of fuel with bases	Yes
19	11	05	sludges from on-site effluent treatment containing dangerous substances	Yes
19	11	06	sludges from on-site effluent treatment other than those mentioned in 19 11 05	No
19	11	07	wastes from flue-gas cleaning	Yes
19	11	99	wastes not otherwise specified	No
19	12	01	paper and cardboard	No
19	12	02	ferrous metal	No
19	12	03	non-ferrous metal	No
19	12	04	plastic and rubber	No
19	12	05	glass	No
19	12	06	wood containing dangerous substances	Yes
19	12	07	wood other than that mentioned in 19 12 06	No
19	12	08	textiles	No
19	12	09	minerals (for example sand, stones)	No
19	12	10	combustible waste (refuse derived fuel)	No
19	12	11	other wastes (including mixtures of materials) from mechanical treatment of waste containing danger	Yes
19	12	12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those	No
19	13	01	solid wastes from soil remediation containing dangerous substances	Yes
19	13	02	solid wastes from soil remediation other than those mentioned in 19 13 01	No
19	13	03	sludges from soil remediation containing dangerous substances	Yes
19	13	04	sludges from soil remediation other than those mentioned in 19 13 03	No
19	13	05	sludges from groundwater remediation containing dangerous substances	Yes
19	13	06	sludges from groundwater remediation other than those mentioned in 19 13 05	No
19	13	07	aqueous liquid wastes and aqueous concentrates from groundwater remediation containing dangerou	Yes
19	13	08	aqueous liquid wastes and aqueous concentrates from groundwater remediation other than those me	No
20	01	01	paper and cardboard	No
20	01	02	glass	No
20	01	08	biodegradable kitchen and canteen waste	No
20	01	10	clothes	No
20	01	11	textiles	No
20	01	13	solvents	Yes
20	01	14	acids	Yes
20	01	15	alkalines	Yes
20	01	17	photochemicals	Yes
20	01	19	pesticides	Yes
20	01	21	fluorescent tubes and other mercury-containing waste	Yes
20	01	23	discarded equipment containing chlorofluorocarbons	Yes
20	01	25	edible oil and fat	No
20	01	26	oil and fat other than those mentioned in 20 01 25	Yes
20	01	27	paint, inks, adhesives and resins containing dangerous substances	Yes
20	01	28	paint, inks, adhesives and resins other than those mentioned in 20 01 27	No
20	01	29	detergents containing dangerous substances	Yes
20	01	30	detergents other than those mentioned in 20 01 29	No
20	01	31	cytotoxic and cytostatic medicines	Yes
20	01	32	medicines other than those mentioned in 20 01 31	No
20	01	33	batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and acc	Yes
20	01	34	batteries and accumulators other than those mentioned in 20 01 33	No
20	01	35	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and and 20 01 2	Yes
20	01	36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 2	No
20	01	37	wood containing dangerous substances	Yes
20	01	38	wood other than that mentioned in 20 01 37	No
20	01	39	plastics	No
20	01	40	metals	No
20	01	41	wastes from chimney sweeping	No
20	01	99	other fractions not otherwise specified	No
20	02	01	biodegradable waste	No
20	02	02	soil and stones	No
20	02	03	other non-biodegradable wastes	No
20	03	01	mixed municipal waste	No
20	03	02	waste from markets	No
20	03	03	street-cleaning residues	No
20	03	04	septic tank sludge	No
20	03	06	waste from sewage cleaning	No
20	03	07	bulky waste	No
20	03	99	municipal wastes not otherwise specified	No

RD_Code	RD_Description	RD_Type
	Landfill Deposit into or onto land, (e.g. landfill, etc.)	
D1	- deposit of overburden, waste rock and tailings on heaps in the extractive industry.	Disposal
	Incineration on land	
D10	- municipal solid waste incineration plants for incineration of MSW, hazardous waste, sewage sludge, clinical waste, animal carcasses.	Disposal
	Incineration at sea	
D11	This operation is prohibited by EU legislation and international conventions.	Disposal
	Permanent storage Permanent storage (e.g. emplacement of containers in a mine, etc.)	
D12	- landfills for the underground storage of waste.	Disposal
	Blending or mixing prior to submission to any of the operations numbered D1-D12	
D13	- basic sorting activities; crushing and shredding of waste in order to reduce the volume of waste for transport or landfilling; mixing and blending of waste (e.g. mixing of similar wastes from different waste generators); homogenisation, conditioning and solidification	Disposal
	Repackaging prior to submission to any of the operations numbered D1-D13	
D14	- transfer and compaction of waste; packaging of asbestos	Disposal
	Storage pending any of the operations numbered D1-D14	
D15	Does not apply to storage of waste prior to collection at the site at which it was generated. Temporary storage of waste prior to disposal is limited to a period of <1 year. Otherwise the provisions of the Landfill Directive apply (Directive 1999/31/EC, Article 2(g)).	Disposal
	Land treatment Land treatment, (e.g. biodegradation of liquid or sludgy discards in soils, etc.)	
D2	- spreading of waste on land, often followed by the incorporation of the waste into the soil, which does not result in benefit to agriculture or other ecological improvements. Generally applies to non-hazardous sludge and liquid wastes, e.g. disposal of dredging sludge.	Disposal
	Injection Deep injection, (e.g. injection of pumpable discards into wells, salt domes of naturally occurring repositories, etc.)	
D3	- injection of waste into natural and artificial cavities (e.g. salt domes, wells, mines), and porous formations of rock not covered by Directive 1999/31/EC.	Disposal
	Surface impoundment Surface impoundment, (e.g. placement of liquid or sludge discards into pits, ponds or lagoons, etc.)	
D4	- the deposit of waste in natural or engineered ponds, pits or lagoons (impoundment), which is the predominant method for the management of tailings in mining operations; impoundment of dredging sludge.	Disposal
	Engineered landfill Specially engineered landfill, (e.g. placement into lined discrete cells which are capped and isolated from one another and the environment, etc.)	
D5	- landfills for inert waste, non-hazardous waste and hazardous waste above ground.	Disposal
	Release to waters Release into a water body except seas/oceans	
D6	- deposit of non-hazardous dredging sludge and other non-hazardous sludge in surface water including the bed and the subsoil.	Disposal
	Release to sea Release into seas/oceans including sea-bed insertion	
D7	- discharge of waste at sea in accordance with the OSPAR Convention (e.g. discharge of fish processing waste and inert materials of natural origin).	Disposal
	Biological treatment Biological treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1- D12	
D8	-biological-mechanical treatment of minicipal waste; biological treatment of contaminated soil; sludges or mineral wastes, if followed by disposal	Disposal
	Physico chemical treatment Physico chemical treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1-D12 (e.g. evaporation, drying, calcination, neutralization, precipitation, etc.)	
D9	-physico-chemical treatment is typically deployed for: mulsions and oil/water mixtures; neutral aqueous organics and inorganics (production specific waste water, leachate, etc.); cyanides; acids and alkalis. Typical treatment steps are detoxification (oxidation/reduction), precipitation, neutralisation, emulsion separation, immobilisation, electrolysis and osmosis.	Disposal
	Use as fuel Use as a fuel (other than in direct incineration) or other means to generate energy	
R1	- use of tyres, waste oils, or spent solvents in cement kilns; co-incineration of sewage sludge or refuse-derived fuel (RDF) from municipal waste in power stations.	Recovery

	Landspreading Land treatment resulting in benefit to agriculture or ecological improvement	
R10	- use of sewage sludge in agriculture in compliance with the Sewage Sludge Directive; the spreading on land of compost from the treatment of separately collected biowaste; the use of manure in compliance with agricultural regulations; the use of mineral wastes as fertilisers in compliance with national legislation; landscape restoration, e.g. as final landfill cover; restoration of old disused quarries.	Recovery
	Use of residuals Uses of residual materials obtained from any of the operations numbered R1-R10	
R11	- energy recovery of sorting residues, shredder light fraction, or distillation sludge from oil-refining; the use of slag from co-incineration for underground stowage.	Recovery
	Waste Exchange prior to recovery Exchange of wastes for submission to any of the operations numbered R1-R11	
R12	- basic sorting activities; mixing of waste from different generators before it is sent to a recovery facility; transfer and compaction of waste; shredding of wood waste prior to energy recovery.	Recovery
	Storage prior to recovery Accumulation of material intended for any operation numbered R1-R12	
R13	- interim storage of waste prior to recovery is limited to a period of <3 years, otherwise storage is subject to provisions of Landfill Directive.	Recovery
	Solvent reclamation/regeneration	
R2	- re-refining of solvents in order to separate contaminants and to restore the solvent to its original quality or to a lower grade product (e.g. lacquer thinner); preparation of secondary liquid fuels (SLF), usually by blending with other liquid wastes.	Recovery
	Organic substance recycling/reclamation Recycling/reclamation of organic substances which are not used as solvents	
R3	- recycling of waste paper and board; reprocessing and recycling of plastic waste; composting of bio waste and green waste; fermentation of biodegradable waste for biogas production (biogas plants).	Recovery
	Metal recycling/reclamation Recycling/reclamation of metals and metal compounds	
R4	- recycling of scrap and production waste in steelworks; shredding and reprocessing of ELVs and WEEE; thermal treatment of cables or oil-contaminated metals; battery recycling; electrolytic recovery of silver from photo chemicals.	Recovery
	Inorganic substance recycling/reclamation Recycling/reclamation of other inorganic materials	
R5	- reprocessing of construction and demolition waste; reprocessing and recycling of glass waste; use as secondary raw material in cement kilns; asphalt mixing plants; use for underground stowage in mines.	Recovery
	Regeneration of acids or bases	
R6	- re-concentration of spent acids; the thermal decomposition of spent sulphuric acid for use as feedstock in sulphuric acid production.	Recovery
	Recovery of components used for pollution abatement	
R7	- regeneration of activated carbon from water purification and flue gas treatment, mainly by thermal treatment; the regeneration of resins by solvent washing.	Recovery
	Recovery of components from catalysts	
R8	-regeneration of catalysts to be reused as catalysts; the recovery of catalyst components, mainly of metal components, e.g. recycling of precious metals from catalytic converters in vehicle exhausts.	Recovery
	Used oil re-refining or other reuses of previously used oil	
R9	- Re-refining into base oils which can be used to manufacture lubricating products; use to generate fuel which can be used as a substitute for coal, diesel and light fuel.	Recovery

Select a code by double-clicking on the method code cell below

Methods used for determination of releases to air: Method Identification Codes

For each parameter please click on the Method Code that applies. Please take note of the appropropriate **Method Category (M/C/E)** and **Method Designation or Description** according to this

Method Code	M/C/E	Where this code is applicable	Designation or Description
ISO 10397:1993	M	Asbestos	Leave Blank
ISO 11338-1 to 2:2003	M	Anthracene, polycyclic aromatic hydrocarbons (PAHs) & flouranthene	Leave Blank
EN 14385:2004	M	(Arsenic, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Lead, Antimony, Thallium, Vanadium and Zinc) & Compounds	Leave Blank
EN 15058:2004	M	Carbon Monoxide (CO)	Leave Blank
ISO 12039:2001	M	Carbon Monoxide (CO) & Carbon Dioxide (CO2)	Leave Blank
EN 1911-1 to 3:2003	M	Chlorine & Inorganic Compounds (as HCl)	Leave Blank
ISO/DIS 15713:2004	M	Fluorine & Inorganic Compounds (as HF)	Leave Blank
EN 13211:2001	M	Mercury & Compounds (as Hg)	Leave Blank
EN 14884:2005	M	Mercury & Compounds (as Hg)	Leave Blank
EN 14792:2005	M	Nitrogen Oxides (Nox/NO2)	Leave Blank
ISO 11564:1998	M	Nitrogen Oxides (Nox/NO2)	Leave Blank
ISO 10849:1996	M	Nitrogen Oxides (Nox/NO2)	Leave Blank
EN 13649:2001	M	Non-Methane Volatile Organic (NMVOC) & Benzene	Leave Blank
EN 1948-1 to3:2003	M	PCDD + PCDF(dioxins + furans) (as Teq),	Leave Blank
EN 14791:2005	M	Sulphur Oxides (Sox/SO2)	Leave Blank
ISO 7934:1989	M	Sulphur Oxides (Sox/SO2)	Leave Blank
ISO 7935: 1992	M	Sulphur Oxides (Sox/SO2)	Leave Blank
ISO 11632:1998	M	Sulphur Oxides (Sox/SO2)	Leave Blank
ALT	M	Is applicable if the facility is using a CEN or ISO standard but not the one on the approved list in the PRTR Guidance.	Name of the ISO /CEN Standard
CRM	M	If a lab/facility is using a non-ISO/CEN Method that is validated and accredited or has been accepted by the Agency.	Name of the non-ISO/CEN Standard
ETS	C	If a facility is registered as part of the Emission Trading Scheme.	Leave Blank
OTH	M /C	If the method or the calculation does not fall under any of the method codes e.g. in-house methodology not based on CEN/ISO standard.	Brief & specific description of the method / Calculation used.
PER	M/C	This is only applicable if the facility's license specifies a specific standard method to use e.g. Use ISO... If you license states to use Standard Method or a particular piece of equipment this does not fall under PER.	Name of the prescribed standard
NRB	M/C	Not Applicable to Irish Licenses.	-
MAB	C	Used for the calculation of fugitive emissions.	Brief & specific description of the Calculation used.
SSC	C	The only European wide sector specific calculation method used in Ireland is for Greenhouse methods and this is covered by ETS.	-
ESTIMATE	E	Estimates are used when the releases are determined by best assumptions or expert guesses that are not based on publicly available references or in case of absence of recognised emission estimation methodologies or good practice guidelines.	Leave blank, however a detailed description of how the estimation was undertaken must be outlined in your Annual Environmental Report (AER)

Methods used for determination of releases to water & waste water or sewer: Method Identification Codes

For each parameter please click on the Method Code that applies. Please take note of the appropropriate **Method Category (M/C/E)** and **Method Designation or Description** according to this

Method Code	M/C/E	Where this code is applicable	Designation or Description
EN ISO 10301:1997	M	1,2-dichloroethane (EDC), dichloromethane (DCM)	Leave Blank
EN ISO 15680:2003	M	1,2-dichloroethane (EDC), dichloromethane (DCM), tetrachloroethlyene (PER), trichlorobenzenes (TCBs) (all isomers), trichloroethlene, trichloromethane, vinyl chloride, benzene, ethyl benzene, naphthalene, toluene, xylenes	Leave Blank
EN ISO 6468:1996	M	Aldrin, DDT, dieldrin,endosulfan, endrin, heptachlor, hexachlorobenzene (HCB), 1,2,3,4,5,6-hexachlorocyclohexane (HCH), lindane, pentachlorobenzene, polychlorinated biphenols (PCBs)	Leave Blank
EN ISO 17993:2003	M	Anthracene, naphthalene, polycyclic aromatic hydrocarbons (PAHs), flouranthene, benzo(g,h,i)perylene	Leave Blank
EN ISO 11969:1996	M	Arsenic & Compounds (as As)	Leave Blank
EN 26595:1992	M	Arsenic & Compounds (as As)	Leave Blank
EN ISO 10695:2000	M	Atrazine, Simanzine	Leave Blank
EN ISO 11423-1 to 2:1997,	M	Benzene	Leave Blank
ISO 22032	M	Brominated Biphenylethers (PBDE)	Leave Blank
EN ISO 5961:1995	M	Cadmium & Compounds(as Cd)	Leave Blank

EN ISO 15682:2001	M	Chlorides (as total Cl)	Leave Blank
EN ISO 10304-1 to 4:1995	M	Chlorides (as total Cl), Fluorides (as total F)	Leave Blank
EN 1233:1996	M	Chromium & (as Cr)	Leave Blank
EN ISO 14403:2002	M	Cyanides (as total CN)	Leave Blank
EN ISO 18856:2005	M	Di-(2-ethyl hexyl) phthalate (DEHP)	Leave Blank
EN ISO 11369:1997	M	Diuron, Simazine	Leave Blank
EN ISO 9562:2004	M	Halogenated Organics (as AOX)	Leave Blank
EN 1483:1997	M	Mercury & Compounds (as Hg)	Leave Blank
EN 12338:1998	M	Mercury & Compounds (as Hg)	Leave Blank
EN 13506:2001	M	Mercury & Compounds (as Hg)	Leave Blank
EN ISO 17353:2005	M	Organotin (as total Sn), Tributyltin, Triphenyltin & Compounds	Leave Blank
ISO 18073:2004	M	PCDD + PCDF (dioxins + furans) (as Teq)	Leave Blank
ISO 18857-1:2005	M	Phenols (as total C)	Leave Blank
ISO 7981-1 to 2:2005	M	Polycyclic Aromatic Hydrocarbons (PAHs)	Leave Blank
EN 1484:1997	M	Total Organic Carbon (TOC) (as total C or COD/3)	Leave Blank
EN 12260:2003	M		Leave Blank
EN ISO 11905-1:1998	M	Total Nitrogen	Leave Blank
EN ISO 15681-1 to 2:2004	M	Total Phosphorous	Leave Blank
EN ISO 11885:1997	M	Total Phosphorous, Cadmium& compounds, Chromium & Compounds, Copper & Compounds, Nickel & Compounds, Lead & Compounds and Zinc & Compounds.	Leave Blank
EN ISO 6878:2004	M	Total Phosphorous	Leave Blank
ALT	M	Is applicable if the facility is using a CEN or ISO standard but not the one on the approved list in the PRTR Guidance.	Name of the ISO /CEN Standard
CRM	M	If a lab/facility is using a non-ISO/CEN Method that is validated and accredited or has been accepted by the Agency.	Name of the non-ISO/CEN Standard
ETS	C	If a facility is registered as part of the Emission Trading Scheme.	Leave Blank
OTH	M /C	If the method or the calculation does not fall under any of the method codes e.g. in-house methodology not based on CEN/ISO standard.	Brief & specific description of the method / Calculation used.
PER	M/C	This is only applicable if the facility's license specifies a specific standard method to use e.g. Use ISO... If you license states to use Standard Method or a particular piece of equipment this does not fall under PER.	Name of the prescribed standard
NRB	M/C	Not Applicable to Irish Licenses.	-
MAB	C	Used for the calculation of fugitive emissions.	Brief & specific description of the Calculation used.
SSC	C	The only European wide sector specific calculation method used in Ireland is for Greenhouse methods and this is covered by ETS.	-
ESTIMATE	E	Estimates are used when the releases are determined by best assumptions or expert guesses that are not based on publicly available references or in case of absence of recognised emission estimation methodologies or good practice guidelines.	Leave blank, however a detailed description of how the estimation was undertaken must be outlined in your Annual Environmental Report (AER)

Method Codes
M
C
E

Lookups Configured
Y

Water Types
Freshwater
Seawater
Estuary

Transfer Destination
Within the Country
To Other Countries

Waste Treatment Operation
Recovery
Disposal

Waste Method Used
Weighed
Volume Calculation

Treatment Location
Onsite of generation
Offsite in Ireland
Abroad

Yes/No
Yes
No

Country
Afghanistan
Åland Islands
Albania
Algeria
American Samoa
Andorra
Angola
Anguilla
Antarctica
Antigua and Barbuda
Argentina
Armenia
Aruba
Australia
Austria
Azerbaijan
Bahamas
Bahrain
Bangladesh
Barbados
Belarus
Belgium
Belize
Benin
Bermuda
Bhutan
Bolivia
Bosnia and Herzegovina
Botswana
Bouvet Island
Brazil
British Indian Ocean Territory
Brunei Darussalam
Bulgaria
Burkina Faso
Burundi
Cambodia
Cameroon
Canada
Cape Verde
Cayman Islands
Central African Republic
Chad
Chile
China
Christmas Island
Cocos (Keeling) Islands
Colombia
Comoros
Congo
Congo the Democratic Republic of the
Cook Islands
Costa Rica
Côte d'Ivoire
Croatia
Cuba
Cyprus
Czech Republic
Denmark
Djibouti
Dominica
Dominican Republic
Ecuador
Egypt

El Salvador
Equatorial Guinea
Eritrea
Estonia
Ethiopia
Falkland Islands (Malvinas)
Faroe Islands
Fiji
Finland
France
French Guiana
French Polynesia
French Southern Territories
Gabon
Gambia
Georgia
Germany
Ghana
Gibraltar
Greece
Greece
Greenland
Grenada
Guadeloupe
Guam
Guatemala
Guernsey
Guinea
Guinea-Bissau
Guyana
Haiti
Heard Island and McDonald Islands
Holy See (Vatican City State)
Honduras
Hong Kong
Hungary
Iceland
India
Indonesia
Iran Islamic Republic of
Iraq
Ireland
Isle Of Man
Israel
Italy
Jamaica
Japan
Jersey
Jordan
Kazakhstan
Kenya
Kiribati
Korea Democratic People's Republic of
Korea Republic of
Kuwait
Kyrgyzstan
Lao People's Democratic Republic
Latvia
Lebanon
Lesotho
Liberia
Libyan Arab Jamahiriya
Liechtenstein
Lithuania
Luxembourg
Macao
Macedonia the Former Yugoslav Republic of
Madagascar
Malawi
Malaysia
Maldives
Mali
Malta
Marshall Islands
Martinique
Mauritania
Mauritius
Mayotte
Mexico
Micronesia Federated States of
Moldova Republic of
Monaco
Mongolia
Montenegro
Montserrat
Morocco
Mozambique
Myanmar
Namibia
Nauru
Nepal
Netherlands

Netherlands Antilles
New Caledonia
New Zealand
Nicaragua
Niger
Nigeria
Niue
Norfolk Island
Northern Mariana Islands
Norway
Oman
Pakistan
Palau
Palestinian Territory Occupied
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Pitcairn
Poland
Portugal
Puerto Rico
Qatar
Reunion
Romania
Russian Federation
Rwanda
Saint Barthélemy
Saint Helena
Saint Kitts and Nevis
Saint Lucia
Saint Martin
Saint Pierre and Miquelon
Saint Vincent and the Grenadines
Samoa
San Marino
Sao Tome and Principe
Saudi Arabia
Senegal
Serbia
Seychelles
Sierra Leone
Singapore
Slovakia
Slovenia
Solomon Islands
Somalia
South Africa
South Georgia and the South Sandwich Islands
Spain
Sri Lanka
Sudan
Suriname
Svalbard and Jan Mayen
Swaziland
Sweden
Switzerland
Syrian Arab Republic
Taiwan Province of China
Tajikistan
Tanzania United Republic of
Thailand
Timor-Leste
Togo
Tokelau
Tonga
Trinidad and Tobago
Tunisia
Turkey
Turkmenistan
Turks and Caicos Islands
Tuvalu
Uganda
Ukraine
United Arab Emirates
United Kingdom
United States
United States Minor Outlying Islands
Uruguay
Uzbekistan
Vanuatu
Venezuela
Viet Nam
Virgin Islands British
Virgin Islands U.S.
Wallis and Futuna
Western Sahara
Yemen
Zambia
Zimbabwe

General Help
This Excel workbook is divided into numerous worksheets
The first group of worksheets form the AER return once filled in by the licensee
The remaining worksheets provide reference material to assist in the filling out of the data
Quick help on filling out each sheet can also be found by hovering your mouse over the red triangle in cells that include help

Printing
The AER return data from each sheet can be printed by clicking on the PRINT THIS SHEET button

Creating & Submitting an AER Return
Once all relevant data has been entered click the CREATE AER XML RETURN & UPLOAD button on the Facilities worksheet
This will validate the workbook and prompt you to enter a location for creating the XML AER Return file (C:\ by default)
You can either accept the default path or enter a different path where the file will be created, then click the OK button
Once the file has been created a message will be displayed containing further instructions (Make a note of the XML file at this point)
You will then be redirected to the AER returns website where you must first login and then attach your XML file for uploading
It is therefore important to ensure you have internet access from the computer you are making a return from
Follow the instructions on the website to complete the AER return

Facility ID & Activities
This worksheet contains Licensee-specific information about the facility making the return
The following areas should be filled out on this worksheet :
Production Volume
Number of Installations
Number of Operating Hours in Year
Number of Employees
User Feedback/Comments
Web Address

You should also fill out section 3 - Solvents Directive
Please examine all pre-entered data to ensure that it is correct. You will need to inform the EPA if anything should be altered

Releases to Air
This worksheet allows you to enter any pollutants that are released to air
Based on your Class Activities the PRTR pollutants list will be divided into two sections (Section A and B)
Section A represents sector-specific pollutants which apply to air and are based on your class activities
Section B represents all remaining pollutants that could be released to air but are not contained in Section A
This division of pollutants allows for quicker and more intuitive filling out of the worksheet as pollutants are grouped by priority
The third section (Section C) provides an area to fill in Licensed pollutants

An additional section for Landfill operators must be filled out also
Enter a Total KG/Year, Method used details and the Facility Total Capacity as appropriate

Each section is filled in the same manner
Begin by selecting a pollutant from the dropdown list under the pollutant section
When you select a pollutant the pollutant number and name will appear in the corresponding cells
Next, fill in the method used section of the worksheet by selecting a method from the dropdown list
Only Measured, Calculated or Estimated are the values that can be entered here
Fill in a Method Code and Designation or Description (For further help please refer to the Methods Used worksheet)
Next, enter the quantities of release for this pollutant under Emission Point 1
This will appear in the Total Quantity cell also
If any Accidental or Fugitive releases for this pollutant are applicable then enter these under the Accidental or Fugitive section
If you have releases from more than one Emission Point then you can add additional points by clicking on the Add Emission Point button
This will add an additional Emission Point column to the right of the last one (A maximum of 9 points can be used)
The Accidental and Fugitive quantities represent the totals for ALL emission points and not one particular point

You can also enter comments or a description of each emission point in the grey cell over the emission point

In order to add another pollutant in a particular section you must click the ADD NEW ROW button
If you have made a mistake and wish to remove the last row entered then click the DELETE LAST ROW button in the relevant section
If you have no releases for a particular section then do not enter any pollutant or related data into the section - leave it blank

Releases to Waters
This worksheet allows you to enter any pollutants that are released to water
Based on your Class Activities the PRTR pollutants list will be divided into two sections (Section A and B)
Section A represents sector-specific pollutants which apply to water and are based on your class activities
Section B represents all remaining pollutants that could be released to water but are not contained in Section A
This division of pollutants allows for quicker and more intuitive filling out of the worksheet as pollutants are grouped by priority
The third section (Section C) provides an area to fill in Licensed pollutants

Each section is filled in the same manner
Begin by selecting a pollutant from the dropdown list under the pollutant section
When you select a pollutant the pollutant number and name will appear in the corresponding cells
Next, fill in the method used section of the worksheet by selecting a method from the dropdown list
Only Measured, Calculated or Estimated are the values that can be entered here
Fill in a Method Code and Designation or Description (For further help please refer to the Methods Used worksheet)
Next, enter the quantities of release for this pollutant under Emission Point 1

This will appear in the Total Quantity cell also
If any Accidental or Fugitive releases for this pollutant are applicable then enter these under the Accidental or Fugitive section
If you have releases from more than one Emission Point then you can add additional points by clicking on the Add Emission Point button
This will add an additional Emission Point column to the right of the last one (A maximum of 9 points can be used)
The Accidental and Fugitive quantities represent the totals for ALL emission points and not one particular point

You can also enter comments or a description of each emission point in the grey cell over the emission point

In order to add another pollutant in a particular section you must click the ADD NEW ROW button
If you have made a mistake and wish to remove the last row entered then click the DELETE LAST ROW button in the relevant section
If you have no releases for a particular section then do not enter any pollutant or related data into the section - leave it blank

Offsite Transfers of Pollutants
This worksheet allows you to enter any pollutants that are transferred offsite and are destined for waste-water treatment or sewer
This worksheet is divided into two sections (Section A and B)
Section A represents PRTR pollutants while section B represents Licensed pollutants

Each section is filled in the same manner
Begin by selecting a pollutant from the dropdown list under the pollutant section
When you select a pollutant the pollutant number and name will appear in the corresponding cells
Next, fill in the method used section of the worksheet by selecting a method from the dropdown list
Only Measured, Calculated or Estimated are the values that can be entered here
Fill in a Method Code and Designation or Description (For further help please refer to the Methods Used worksheet)
Next, enter the quantities of release for this pollutant under Emission Point 1
This will appear in the Total Quantity cell also
If any Accidental or Fugitive releases for this pollutant are applicable then enter these under the Accidental or Fugitive section
If you have releases from more than one Emission Point then you can add additional points by clicking on the Add Emission Point button
This will add an additional Emission Point column to the right of the last one (A maximum of 9 points can be used)
The Accidental and Fugitive quantities represent the totals for ALL emission points and not one particular point

You can also enter comments or a description of each emission point in the grey cell over the emission point

In order to add another pollutant in a particular section you must click the ADD NEW ROW button
If you have made a mistake and wish to remove the last row entered then click the DELETE LAST ROW button in the relevant section
If you have no releases for a particular section then do not enter any pollutant or related data into the section - leave it blank

Releases to Land
This worksheet allows you to enter any pollutants that are released to land
This worksheet is divided into two sections (Section A and B)
Section A represents PRTR pollutants while section B represents Licensed pollutants

Each section is filled in the same manner
Begin by selecting a pollutant from the dropdown list under the pollutant section
When you select a pollutant the pollutant number and name will appear in the corresponding cells
Next, fill in the method used section of the worksheet by selecting a method from the dropdown list
Only Measured, Calculated or Estimated are the values that can be entered here
Fill in a Method Code and Designation or Description (For further help please refer to the Methods Used worksheet)
Next, enter the quantities of release for this pollutant under Emission Point 1
This will appear in the Total Quantity cell also
If any Accidental releases for this pollutant are applicable then enter these under the Accidental section
If you have releases from more than one Emission Point then you can add additional points by clicking on the Add Emission Point button
This will add an additional Emission Point column to the right of the last one (A maximum of 9 points can be used)
The Accidental quantities represent the totals for ALL emission points and not one particular point

You can also enter comments or a description of each emission point in the grey cell over the emission point

In order to add another pollutant in a particular section you must click the ADD NEW ROW button
If you have made a mistake and wish to remove the last row entered then click the DELETE LAST ROW button in the relevant section
If you have no releases for a particular section then do not enter any pollutant or related data into the section - leave it blank

Treatment & Transfers of Waste
This worksheet allows you to enter onsite treatment and offsite transfers of waste
Begin by selecting the transfer destination from the dropdown list (valid entries are Within the Country or To Other Countries)
Next, select the EWC (European Waste Code) by double-clicking on the EWC cell for the record you are filling out
The EWC reference worksheet will be displayed
Select the appropriate chapters to build the waste code (These are broken into Group, SubGroup and Code on the reference sheet)
To select a code double-click on it where you will then be brought to the next section of codes under the selected one
Appropriate codes for the selected values will be highlighted in blue
Repeat this for the subsequent levels to retrieve the full six-digit Waste Code
The code will then be returned to the Treatment & Transfers of Waste sheet that is being filled out
If you already know the full six digit EWC then just scroll down the Waste Reference sheet and double click on the six-digit code
The Hazardous value for the entered EWC will be displayed
Enter a quantity for the particular EWC (Tonnes/year)
Enter a description for the waste
Next, select a Waste Treatment Operation by double-clicking on the cell under this section
The Waste Treatment Operation reference worksheet will be displayed

Select the appropriate code by double-clicking on it
The code will then be returned to the Treatment & Transfers of Waste sheet that is being filled out
Select a method used from the dropdown lists in the Method Used section of the sheet
Select a Location of Treatment from the dropdown list (valid values are Onsite in Ireland, Offsite in Ireland and Abroad)
Enter the name of the recoverer/disposer
Enter the address of the recoverer/disposer
Enter the final address of the recovery/disposal site
Enter the Licence / Permit No. of the final recovery/disposal site
In order to add another waste code record you must click the ADD NEW ROW button
If you have made a mistake and wish to remove the last row entered then click the DELETE LAST ROW button in the relevant section
If you have no waste data to enter then do not enter any waste or related data into this worksheet - leave it blank

Ref. - NACE Codes
This worksheet contains reference information for NACE codes

Ref. PRTR Activities
This worksheet contains reference information for PRTR Class Activities

Ref. PRTR Pollutants
This worksheet contains reference information for PRTR Pollutants

Ref. Licensed Pollutants
This worksheet contains reference information for Licensed Pollutants

Ref. Waste Codes
This worksheet contains reference information for EWC (European Waste Codes)

Ref. RecovererDisposer Codes
This worksheet contains reference information for Recoverer and Disposer Codes

Ref. Methods Used
This worksheet contains reference information for Methods Used

Please enter details below then click the OK button

Name of Recoverer / Disposer / Next Destination Facility	
Licence / Permit No. of Recoverer / Disposer / Next Destination Facility	
Address of Recoverer / Disposer / Next Destination Facility	
Address 1 / Street name	
Address 2 / Building number	
Address 3 / City name	
Address 4 / Postcode	
Country	

Alternatively, please select from previously entered details by clicking on the row below then click OK

Name and License / Permit No. Address of Recoverer / Disposer / Broker

Dublin City Council Waste Water T .,Ringsend,Dublin 4,.,Ireland

Please enter details below then click the OK button

Name of Final Recoverer / Disposer	
License / Permit No. of Final Recoverer / Disposer	
Address of Final Recoverer / Disposer	
Address 1 / Street name	
Address 2 / Building number	
Address 3 / City name	
Address 4 / Postcode	
Country	
Address of Actual Recovery / Disposal Site	
Address 1 / Street name	
Address 2 / Building number	
Address 3 / City name	
Address 4 / Postcode	
Country	

Please enter a full stop "." in an address field if there is no data to be entered

Alternatively, please select from previously entered details by clicking on the row below then click OK

Name and License / Permit No. Address of Final Recoverer / Disposer Address of Actual Recovery / Disposal Site

Previous years data is correct as at 25/02/2013 14:09

Release_To	Year	Pollutant_Number	Pollutant_Description	M_C_E	Method_Code	Method_Description	Total
Air	2011	1	Methane (CH4)	C	OTH	Total estimated methane generated minus methane flared/utilised	1081710.86
Air	2011	3	Carbon dioxide (CO2)	C	OTH	Gas Sim Data from RPS	8202635.41
Air	2011	900	Total estimated methane generation	C	Oth	Gas Sim Data from RPS	2028722.864
Air	2011	901	Methane flared	M	Oth	Data provided by Bioverda	35075
Air	2011	902	Methane utilised in engine/s	M	Oth	Data provided by Bioverda	911937
Air	2011	903	Net methane emission	C	C	Total generated- flared- utilised	1081710.86

Previous years data is correct as at 25/02/2013 14:09

Year	Destination	EWC	Hazardous	Total	Description	TreatmentOperation	M_C_E	MethodCode	TreatmentLocation	Name_Licence_Permit_No	Address
2011	Within the Country	19 07 03	N	147692	landfill leachate other than those mentioned in 19 07 02	D9	M	Volume Calculation	Offsite in Ireland	Dublin City Council Waste Water Treatment Facility,D0034-01	.,Ringsend,Dublin 4,.,Ireland

Previous years data is correct as at 25/02/2013 14:09

Type of Waste	Previous Year Total	Current Year Total	Percentage Change
Hazardous Waste inside the country for disposal	0	0	0
Hazardous Waste inside the country for recovery	0	0	0
Hazardous Waste outside the country for disposal	0	0	0
Hazardous Waste outside the country for recovery	0	0	0
Non-Hazardous Waste for disposal	147692	223333	51.21536712
Non-Hazardous Waste for recovery	0	0	0