



Comhairle Contae an Chláir
Clare County Council

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Clare County Council

Central Waste Management Facility, Ballyduffbeg, Inagh, County Clare.

► Annual Environmental Report

2012

Prepared by: Transportation, Water Services and Environment Directorate, Clare County Council.

1. TABLE OF CONTENTS

1.0	Contents	2
<hr/>		
2.0	Introduction	4
2.1	Preamble	4
2.2	Reporting Period	4
2.3	Waste Activities Carried Out at the Central Waste Management Facility	4
3.0	Materials/Waste transported on/off site	4
<hr/>		
3.1	Quantity of Disposed Waste	4
3.2	Waste Received in Civic Amenity Site for Offsite Landfill	5
3.3	Details of Waste Received in the Civic Amenity Area for Recycling/Recovery	5
3.4	Leachate Quantities	6
3.5	Landfill Gas Management January to December 2012	9
3.6	Resource and Energy Consumption Summary	10
4.0	Summary of Monitoring and Emissions	10
<hr/>		
4.1	General	10
4.2	Landfill Gas	11
4.3	Landfill Gas Flare	11
4.4	Dust	12
4.5	Noise	13
4.6	Surface Water, Groundwater and Leachate	14
4.6.1	Surface Water	14
4.6.2	Groundwater	19
4.6.3	Leachate	25
4.7	Biological and Ecological Monitoring	29
4.8	Summary Details re EPA Site Visits/Audits During 2012	30
5.0	Works programme 2012-2013	30
<hr/>		
5.1	Report of Development Works for 2012	30
5.2	Proposed Development Works 2013	31
5.3	Progress to Site Restoration	31
5.4	Site Survey and Remaining Void Capacity	31
6.0	Financial Aspects	31
<hr/>		
6.1	Annual Budget and Operating Costs	31
6.2	Portion of Gate Fees for Environmental Improvement Projects	32
6.3	Review of Environmental Liabilities	32
7.0	Review	33
<hr/>		
7.1	Nuisance Controls	33
7.1.1	Litter Control	33
7.1.2	Birds	33
7.1.3	Vermin	33

7.0

Review (cont'd)

7.1.4	Fires	33
7.1.5	Vehicles	33
7.1.6	Odours	34
7.1.7	Dust	34
7.1.8	Visual Intrusion	34
7.1.9	Noise	35
7.1.10	Complaints Register	35
7.2	Landfill Environmental Management Plan	35
7.3	Programme of Public Information	36
7.4	Management and Staffing Structure	37
7.5	Environmental Incidents and Complaints	37
7.6	Waste Reduction and Recovery	38
7.7	Report on Biodegradable Waste/Diversion From Landfill	39
7.8	Report on Progress in Meeting the Requirements of the Landfill Directive	39
7.9	Statement on the Achievement of the Waste Acceptance and Treatment Obligations of the Waste Licence	39
7.10	Statement of Compliance with Relevant Updates of the Regional Waste Management Plan	40
7.11	Updates/Amendments to the Odour Management Plan	40

8.0

Appendices

8.1	Licensed Activities at CWMF	
8.2	Water Balance Calculation	
8.3	Management Structure	
8.4	Summary of Incident Reports	
8.5	Monitoring Point Location Map	
8.6	List of Site Standard Operating Procedures Prepared/Revised During 2012	
8.7	Gas Survey Returns for 2012	
8.8	PRTR Returns for 2012	

2. INTRODUCTION

2.1 Preamble.

The Environmental Protection Agency granted Clare County Council a waste licence for the Central Waste Management Facility (CWMF) located at Ballyduff Beg, Inagh, County Clare, on 13th June 2001 (W0109-01). A revised licence was issued in March 2010 (W0109-02).

Landfilling commenced at the site on the 30th September 2002 and ceased on an interim basis on the 26th November 2011 on completion of filling of the last constructed cell (cell 13). The Annual Environmental Report is prepared in compliance with Condition 2.3 of the licence.

2.2 Reporting Period

This report covers the period January 1st to December 31st 2012.

2.3 Waste Activities carried out at CWMF.

Waste activities at the CWMF are restricted to those outlined in "*Part 1, Activities Licensed*" of W0109-02. These are reproduced in Appendix 8.1 of this report.

The Civic Amenity Site provides recycling receptacles for the collection and recycling of various recyclable waste streams, the materials accepted are detailed in Table 3.1. The Civic Amenity Site remains in operation.

Small quantities of municipal waste were accepted from householders in the civic amenity site during the year. The waste was removed from site by a third party waste contractor for off site landfill.

A composting facility was developed in 2006 to accept and treat green waste from domestic customers only. The green waste is composted in an aerated static pile and the mature compost is used within the site as a soil conditioner. The facility has diverted a total of 1,950t of domestic green waste from landfill between 2006 and the end of 2012. This facility remains in operation.

3. MATERIALS/WASTE TRANSPORTED ON/OFF SITE

3.1 Quantity of disposed waste

No waste was accepted for onsite landfill during the year. Small quantities of household waste were accepted for offsite landfill.

3.2 Waste Received in the Civic Amenity Area for offsite landfill

Residual (landfill) waste from householders and small commercial outlets is loaded into a hopper in the civic amenity site. The waste is moved into a sealed container by means of a static compactor. The container is uncoupled from the compactor and moved off site when full, normally twice per week. A total of 1,120 tonnes of residual waste was accepted from householders in 2012, including bulky waste items and environmental cleanup waste.

3.3 Waste Received in the Civic Amenity Area for Recovery

Various receptacles are provided within the CA site for collection of recyclable waste. The waste streams and tonnages received during the year for recycling are shown in Table 3.1 and in figure 3.1. The collection of waste electrical and electronic equipment (WEEE) commenced on August 13th 2005. All WEEE is stored on site prior to collection by the nominated contractor.

Green waste composting commenced in January 2006, using an aerated static pile to process domestic green waste received directly in the CWMF CA site and also green waste brought from Lisdeen, Ennis and Shannon CA sites. Exhaust air from the aerated static pile is drawn through a woodchip biofilter to protect against odours. The compost is turned regularly and compost temperature is recorded. The finished product is tested in accordance with the requirements of W01090-02. CWMF compost is used mainly as a soil conditioner within the site. Small quantities of compost have been used in the past by the gardening section of Clare County Council. However all of the material produced in 2012 (**400 tonnes**) was used or is yet to be used within the site. The Council began accepting garden waste in January 2006 with a total of 2350 tonnes recovered to the end of 2012.

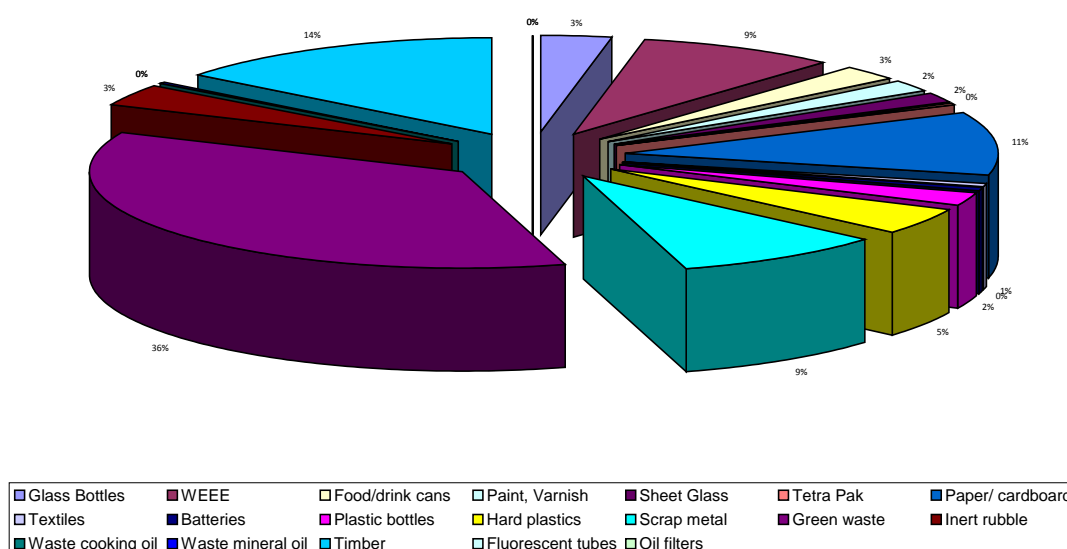
Hard plastics have been accepted at the facility for recovery since mid 2008.

In early 2009, construction & demolition waste from domestic customers was accepted with the agreement of the Agency. This material was used in the construction of haul roads within the operational landfill. With the closure of the landfill, there is no further use for this material within the site. With the exception of small quantities of bathroom ware, which is removed by a third party for recovery, this waste stream is no longer accepted.

TABLE 3.1: QUANTITY (TONNES) OF MATERIALS RECYCLED/RECOVERED IN 2012

Material	Quantity	Material	Quantity	Material	Quantity
Glass Bottles	33	Textiles	8	Waste cooking oil	0.7
WEEE	95.3	Batteries	3.4	Waste mineral oil	5.3
Food/drink cans	29	Plastic bottles	25	Timber	157
Paint, Varnish	21	Hard plastics	50	Fluorescent tubes	0.2
Sheet Glass	18	Scrap metal	101	Oil filters	0.7
Tetra Pak	3	Green waste	400	Total	1,104
Paper/ cardboard	116	Inert rubble	37		

Figure 3.1: Quantity of Household Material Recycled/Recovered during 2012 (percentage by weight)

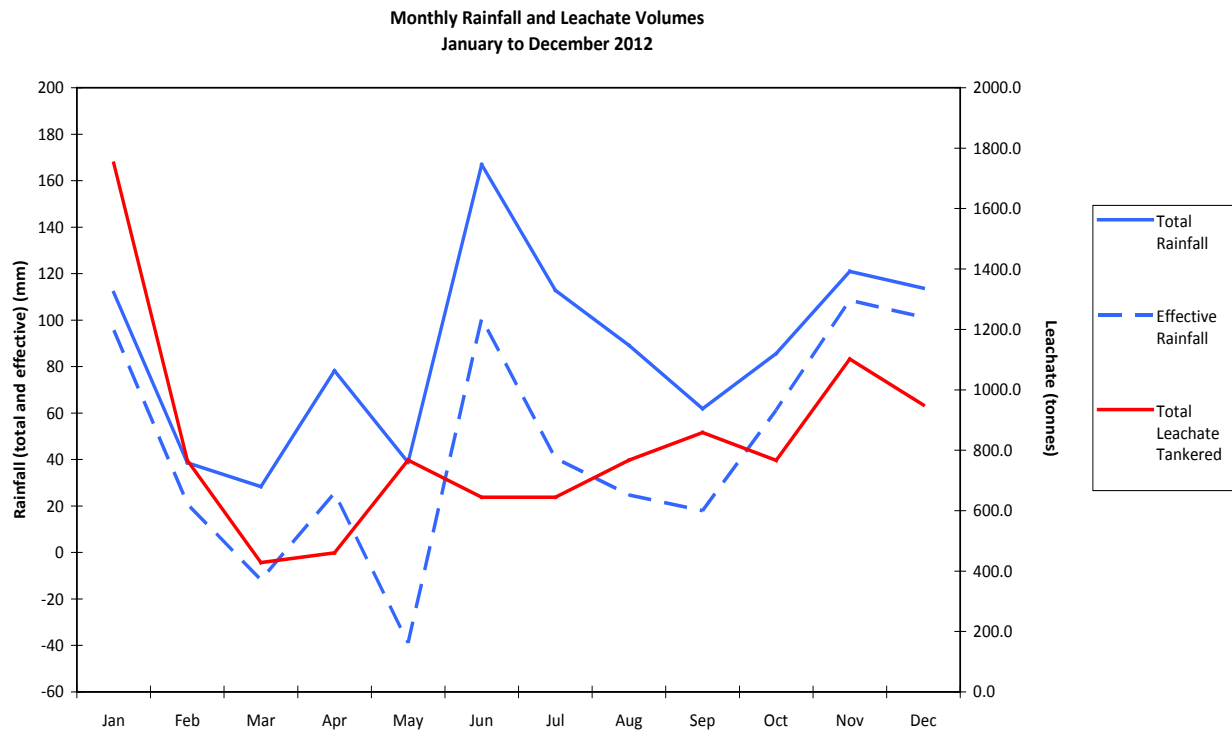


3.4 Leachate Quantities/Water Balance.

Leachate is pumped from a collection sump at the base of each landfill cell to a storage tank within the civic amenity site. Pumps are controlled via the Supervisory Control and Data Acquisition (SCADA) system to start and stop at pre-set levels within the cells. Potentially contaminated stormwater from designated areas within the civic amenity site is discharged to a second leachate storage tank. Leachate is pumped from these tanks and transported by Lack Plant Hire (permit number WCP/LK/115/05c) to wastewater treatment plants in Lisdoonvarna and Sixmilebridge. In total, 9,876 tonnes of leachate were transported off site during 2012. The quantities moved each month are graphed against monthly rainfall in figure 3.2 below. Effective rainfall volumes are also shown in the graph. Although transpiration rates would be zero for unvegetated areas such

as concrete and lined side slopes, some reduction in rainfall volumes would be expected due to evaporation during summer months.

Fig. 3.2: 2012 Rainfall and Leachate Levels:



As can be seen from the graph, leachate volumes were quite closely linked to total rainfall levels except during summer months when evaporation would have resulted in lower effective rainfall.

Annual leachate and rainfall volumes from 2003 to 2012 are shown in fig. 3.3 below. The graph shows that the volume of leachate increased with the development of new landfill cells up to 2008/2009. Volumes reduced after 2009 in part due to lower annual rainfall (see fig.3.4 below). The reduction in leachate was also achieved as a result of the implementation of active leachate reduction measures pursued under Objective 3 of the facility EMS. These measures included i) the installation of rainflaps on all side slopes adjoining the active cell to minimise infiltration of clean rainwater into the waste body; ii) during 2010, kerbing was installed along the civic amenity site lower road to minimise overflow of clean rainwater from the road onto the leachate collection area, a problem which had previously occurred during extreme rainfall events; iii) in October 2011, with the approval of the EPA, modifications were made to the storm drains at the upper level of the civic amenity site, diverting rainfall from this area to the stormwater lagoon. The upper CA site drains previously discharged to the leachate-holding tank. Leachate volumes from the lower CA site were further reduced during 2012 by diverting clean runoff away from the vehicle storage area and by reducing its size. Further modifications are proposed for 2013 on completion of modifications to the CA site layout.

Leachate figures for 2012 were lower than previous years due to the interim closure of the landfill in late 2011 with all cells lined since mid January 2012.

Fig. 3.3: Annual Leachate Tonnages (2003 to 2011)

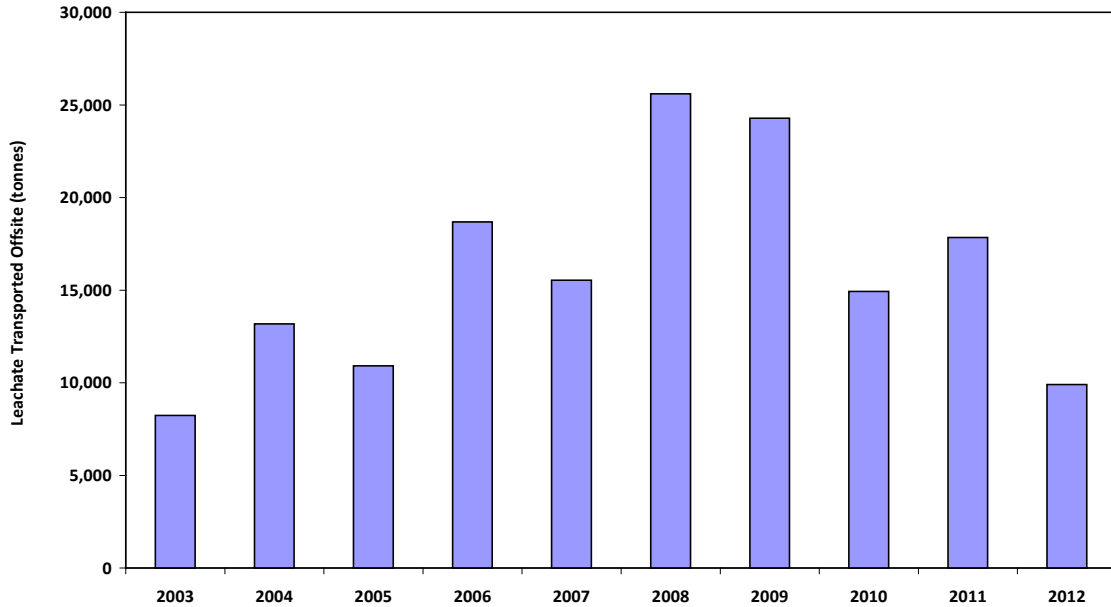
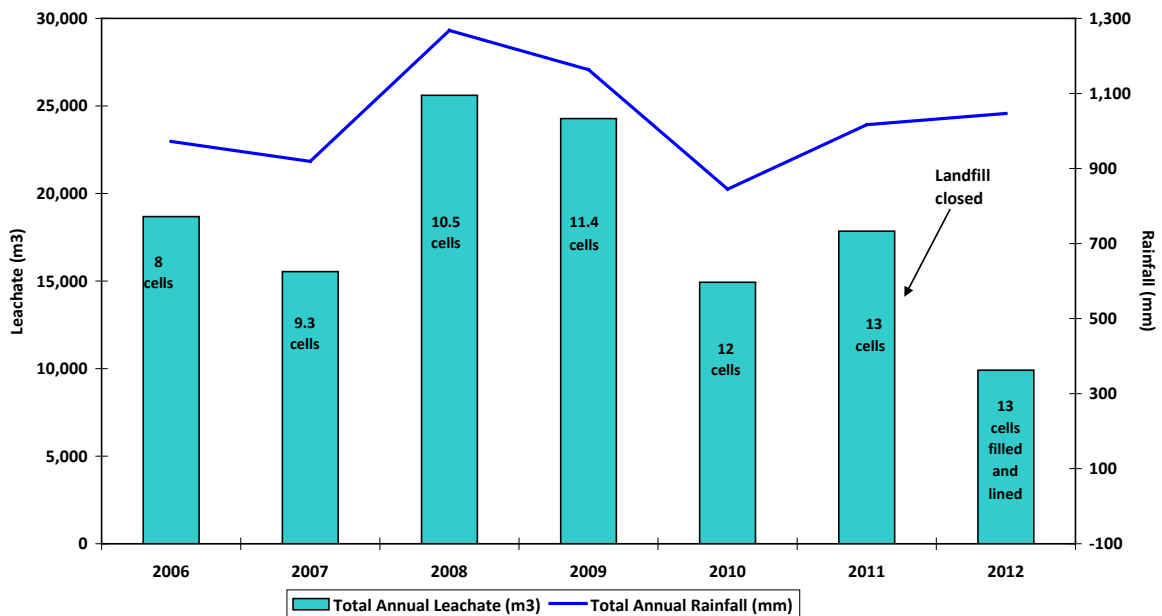


Figure 3.4: Summary of Annual Leachate and Rainfall Volumes, 2006 to 2012 (No. of cells filled or part-filled by end of each year is also shown on graph)



A monthly water balance calculation for the site is attached in Appendix 8.2. This calculation gives a theoretical leachate volume for the year of 9,621m³ (tonnes) based on a Shannon total rainfall figure of 1,047mm. The actual leachate volume for 2012 was 9,876 tonnes, which is very close to this estimate. The

theoretical leachate volume would be significantly lower if effective rainfall were used in the calculation rather than total rainfall.

The water balance assumes an infiltration rate of 10% over capped areas. During 2011 and 2012, SCADA data has been used to monitor the volumes of leachate pumped from each capped cell. While volumes have been seen to vary between cells, the total volume pumped is approximately equivalent to 10% infiltration.

3.5 Landfill Gas Management, January to December 2012

During 2012, flare downtime totalled 21 hours, including periods for servicing. The service company used is Irish Biotech Systems Ltd (IBSL).

All gas extraction has been via capped cells since lining works on the last cell (cell 13) were completed in mid January 2012. The final gas piping arrangement was in place by August 2012, on completion of earthworks on the cell 13 top slope. Gas is drawn around the site via a ring main system. Five manifolds are in place for measuring gas well levels and controlling suction for cells 1 to 11. The method of measurement and control was changed for cell 12 and 13 wells, with the manifold system replaced by a system of separate control valves at each well.

Because landfill gas rates vary due to differential decomposition of the waste, the level of methane generation in each waste cell will fluctuate, decreasing over time as the waste becomes substantially biodegraded. Extraction must be regulated so as to optimise the amount of methane going to the flare and minimise the amount of oxygen in the landfill gas. This is done by regular gas field monitoring. Monitoring is supported by pressure checks on wells to ensure that all wells are under negative pressure and that there are no blockages in gas lines. Maintaining the integrity of the pipe network and freeing blocked lines is an essential element of effective gas management.

During 2012, a total of 1,580,804kg of methane was flared in the site enclosed flare.

By the end of 2012, landfill gas was being extracted from thirteen permanently capped cells, five in phase one (cells 1, 2, 3, 4 and 5), four in phase two (cells 6, 7, 8 and 9) and four in phase 3 (cells 10, 11, 12 and 13).

An application was submitted to ESB Networks during 2009 for a grid connection for an engine with the total generating capacity of 1MW. A connection agreement offer was received in 2010, with a cost of close to 1m euro. The high cost of the grid connection and the early closure of the landfill has caused Clare county Council to reassess the economic value of this project. The possibility of using a smaller engine is still under consideration. Alternative uses of the landfill gas are also being considered.

3.6 Resource and Energy Consumption Summary

Resource and energy consumption figures are outlined below:

TABLE 3.2: RECORDED DIESEL CONSUMPTION IN 2012

Plant/Machinery	Unit	Quantity
Generator	litres	100
JCB, (CCC)	litres	1,725
Tractors	litres	1,951
Dumpers and CCC excavator, pumps	litres	5,023
CCC Site Vehicle (Toyota Pick-up)	litres	1,162
Hyundai Track Machine (Kearney Plant Hire, active cell and capping)	litres	5,000-est
Total amount of Diesel Consumed:	litres	14,961

Diesel consumption figures are based on plant hire contractor information and Council records.

Electricity consumption was **178,650** kWh for the reporting period January to December 2012.

4. SUMMARY OF MONITORING AND EMISSIONS

4.1 General

Section 4.0 presents the results of groundwater, surface water, leachate, noise, dust and flare monitoring for compliance with Condition 9 of Waste Licence W0109-02 for the period January to December 2012. Monitoring was conducted in accordance with Schedule E of the Waste Licence as indicated in Table 4.1 below.

TABLE 4.1: CENTRAL WASTE MANAGEMENT FACILITY (W0109-02) MONITORING SCHEDULE

Schedule	Monitoring Requirement
E.1	Landfill Gas
E.2	Landfill Gas Flare
E.3	Dust
E.4	Noise
E.5	Surface water, Groundwater and Leachate

Monitoring was carried out at the locations and frequencies specified in each of the above referenced schedules of the Waste Licence unless otherwise noted in this report. Surface water, groundwater, leachate,

noise and dust monitoring surveys were conducted by TMS Environment Limited up to June 2012. This work was taken over by SNC Lavelin in July. Conservation Services assessed biological quality of surface waters. Biosphere Environmental Services carried out the ecological surveys for the facility. Biannual monitoring of flare stack emissions was carried out by Odour Monitoring Ireland (OMI) on behalf of SNC Lavelin. Environmental monitoring locations are shown in Drawing No. 1, attached in Appendix 8.5.

4.2 Landfill Gas Monitoring

See also section 3.5 above. Monitoring of waste body and perimeter gas wells was carried out on a weekly basis throughout the year. Results were submitted to the Agency in monthly reports. As for previous years, methane levels at a number of the perimeter wells were elevated during the year. This is believed to be due to the ongoing decomposition of vegetation left in place prior to construction of the embankments. A number of investigations have been carried out over the past five years that confirm this assessment. These included pumping trials, use of hydrogen sulphide as a marker gas, use of spike bars on the landfill side of the access road, and the installation of additional monitoring wells. Odour Monitoring Ireland (OMI) carried out a comparative assessment of the VOC profile of the landfill gas and of the perimeter well gas in early 2007. Results of the assessment showed no relationship between the two VOC profiles, indicating that elevated perimeter well methane levels are unrelated to landfilling activities. This study was repeated during 2010; results again showed no comparison between waste body and perimeter well VOC type and level, providing further confirmation that the source of the perimeter well gas is unrelated to landfilling activities.

4.3 Landfill Gas Flare

Flare stack emissions were monitored on two occasions during the year. Results were submitted to the Agency in separate reports for each survey. A summary of survey findings is given in table 4.2 below:

TABLE 4.2: FLARE MONITORING RESULTS:

Parameter (units)	21 st August 2012	31 st October 2012	Emission Limit ¹
Nitrogen Oxides (NO _x) as NO ₂ (mg/Nm ³)	45.1	55.45	150 mg/m ³ for Flare Stacks
Carbon Monoxide (CO) (mg/Nm ³)	1.875	17.50	50 mg/m ³ for Flare Stacks
Sulphur Dioxide (SO ₂) (mg/Nm ³)	171	1,354	-
Temperature (°C)	1,029	1,041	-
Volumetric Flow Rate (Nm ³ /hr)		743	3,000
Vinyl Chloride (mg/Nm ³)	<3.58	-	-
Acetonitrile (mg/Nm ³)	<3.58	-	-
Dichloromethane (mg/Nm ³)	<3.58	-	-
Tetrachloroethylene (mg/Nm ³)	<3.58	-	-
TA Luft Class I (mg/Nm ³)	2.6*	-	20 mg/m ³ (at mass flows >0.1 kg/hr)
TA Luft Class II (mg/Nm ³)	-	-	100 mg/m ³ (at mass flows >2 kg/hr)
TA Luft Class III (mg/Nm ³)	-	-	150 mg/m ³ (at mass flows >3 kg/hr)
HCl (mg/Nm ³)	0.64	-	50 mg/m ³ (at mass flows >0.3kg/hr)
HF (mg/Nm ³)	1.12	-	5 mg/m ³ (at mass flows >0.05 kg/hr)

Note *: All TA Luft organics assumed to be Class I.

All monitoring results were within emission limit values specified in Schedule F.4. of Waste Licence W0109-02.

4.4 Dust

Three ambient dust-monitoring surveys were carried out during the year. Results are summarised below in table 4.3.

TABLE 4.3: TOTAL DUST MONITORING RESULTS.

Sample location	Monitoring Period			Limit for Dust Deposition (mg/m ² /day)
	17 th July-16 th August 2012	27 th August -25 th September 2012	13 th November -13 th December 2012	
ST1	15	39	<10	350
ST2	62	23	<10	350
ST6	27	16	<10	350
ST7	33	14	26	350

As can be seen from table 4.3, all results were below the licence limit of 350mg/m²/day.

PM₁₀ monitoring was carried out at four locations using size selective sampling and gravimetric analysis. Results are shown in table 4.4 below:

TABLE 4.4: PM₁₀ MONITORING RESULTS.

Monitoring Location:	ST1	ST2	ST3	ST4
Monitoring period:	21 st to 22 nd August 2012			
24 hour average PM ₁₀ , ug/m ³	27	22	14	16

All results were within the licence limit of 50ug/m³. These results were submitted in the quarterly environmental monitoring report for Quarter 4, 2012.

4.5 Noise

Results of noise monitoring surveys carried out during the year are summarised in Table 4.5. Survey results were submitted to the Agency in the environmental monitoring report for each quarter.

Noise results were similar to previous surveys, with noise levels at noise sensitive locations NS4, NS5 and NS6 in compliance with the 55 dB(A) daytime limit and noise levels at NS1, NS2 and NS3 above licence limits. The elevated noise levels at NS1, NS2 and NS3 are attributed to passing road traffic, as is reflected by the high L_{A10} readings obtained at each monitoring point. Monitoring consultants concluded that site noise did not contribute to the measured noise levels at these locations.

TABLE 4.5: ENVIRONMENTAL NOISE SURVEY RESULTS.

Location ID	7 th August 2012			19 th October 2012		
	L _{Aeq} , 30min dB(A)	L _{A90} , 30 min dB(A)	L _{A10} , 30 min dB(A)	L _{Aeq} , 30 min dB(A)	L _{A10} , 30 min dB(A)	L _{A90} , 30 min dB(A)
NS1	56.8	47.6	60.5	58.6	48.0	63.7
NS2	59.7	50.6	61.3	70.6	54.6	71.3
NS3	61.3	50.4	65.3	65.5	49.0	68.9
NS4	51.6	49.4	55.7	51.2	49.1	53.7
NS5	52.3	49.6	54.9	50.9	49.5	53.7
NS6	This site was inadvertently omitted by the contractor as it is not specified under W0109. Monitoring will recommence in 2013.					

4.6 Surface Water, Groundwater and Leachate

4.6.1 Surface Water

Surface water monitoring was carried out on a quarterly basis at SW1, SW1a, SW2, SW3, SW4, SW5, SW7, SW8, SW9, SW10, SW11 and SW12 (an eastern boundary drain feeding into Stream 2) and at the inlet to the stormwater ponds (SW inlet 1 and SW inlet 2) and outlet from the sand filters for both ponds (SW outlet 1 and SW outlet 2). Access to sample point SW6 is not permitted by the landowner. Samples were analysed for the parameters specified in Schedule E5 of Waste Licence W0109-02. In addition, as in previous years, surface water was monitored on a monthly basis for total suspended solids. Weekly surface water visual inspections were also carried out. Sample locations are shown on the drawing attached in Appendix 8.5.

Results for key parameters (ammonia, BOD and total suspended solids) are discussed in this report. Detailed results of all surface water monitoring carried out during the year have previously been submitted to the Agency in separate reports for each quarter.

Stormwater ponds at the site discharge to boundary streams which flow into the Inagh river. The Inagh River in the vicinity of the landfill is assigned Good Status under the Water Framework Directive. Where applicable, surface water monitoring results are compared with the limits for Good Status waters specified in the Surface Water Regulations (SI 272 of 2009).

4.6.1.1. Surface Water BOD:

BOD results for surface water streams, for the Inagh river and for the inlet and outlet to the stormwater ponds are graphed in figures 4.1 to 4.5. The surface water environmental quality standard (EQS) for BOD (95%ile) for

Good Status waters is also shown on the graphs. The majority of results were below the BOD method detection limit, which reduced mid year from 2ppm to 1ppm.

Figure 4.1: Surface Water BOD Levels Inagh River

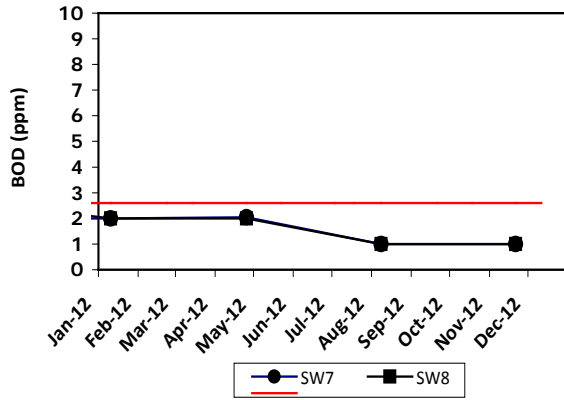


Figure 4.2: Surface Water BOD Levels Inagh River

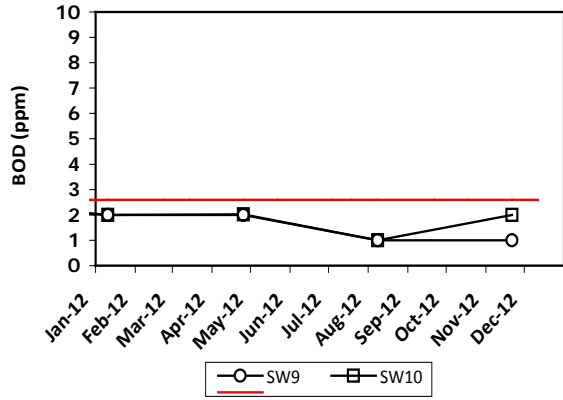


Figure 4.3: Surface Water BOD Levels Stream 1

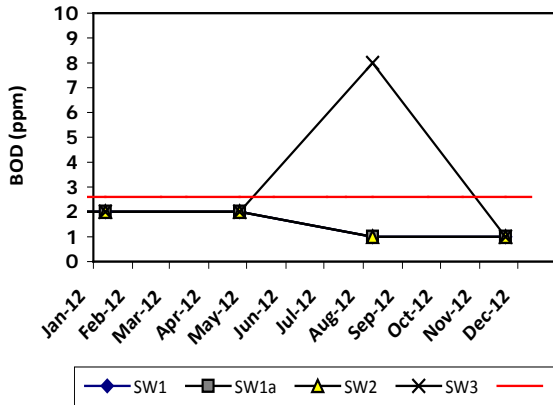


Figure 4.4: Surface Water BOD Levels Streams 2/3

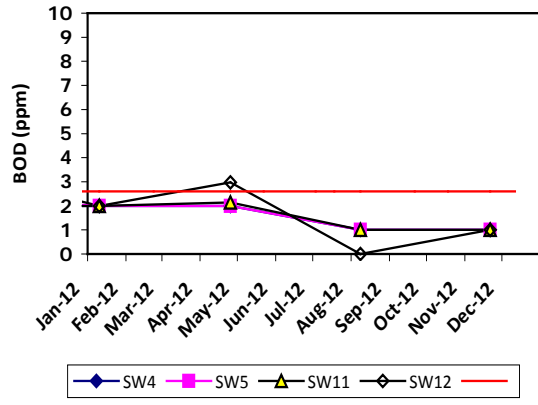
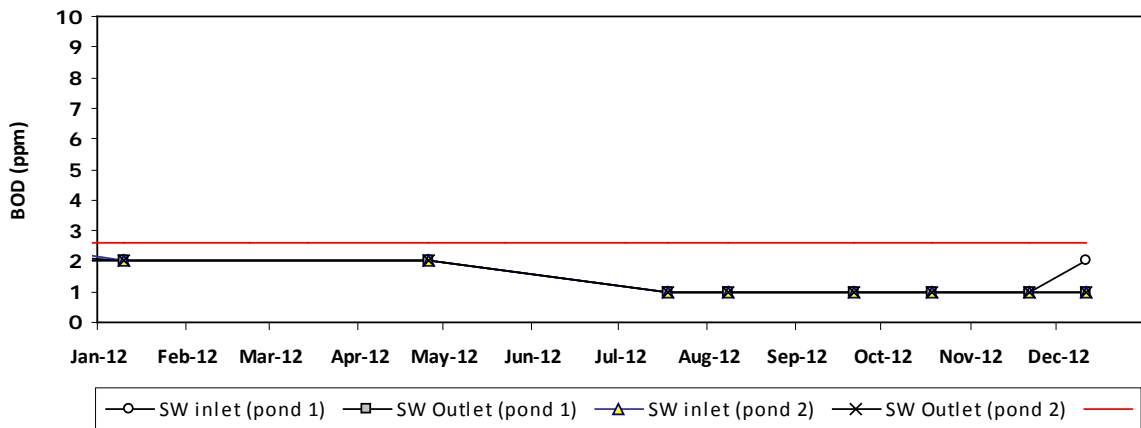


Figure 4.5: SW Inlet and Outlet BOD Levels



As can be seen from the graphs, surface water BOD levels for 2012 were below the EQS in all samples with the exception of one result of 8ppm for SW3 in August 2012; this elevated result was most likely due to runoff from adjoining lands as upstream BOD results and stormwater pond inlet and outlet results were satisfactory.

4.6.1.2 Surface Water Ammonia:

Surface water ammonia levels in Streams 1, 2 and 3 and in the Inagh river are graphed in figures 4.6 to 4.9. The surface water EQS for Good Status waters is also shown on the graphs (95%ile limit).

Figure 4.6: Surface Water Ammonia Levels Stream 1

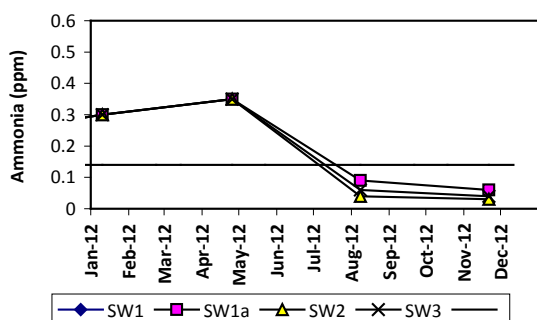


Figure 4.7: Surface Water Ammonia Levels Streams 2/3

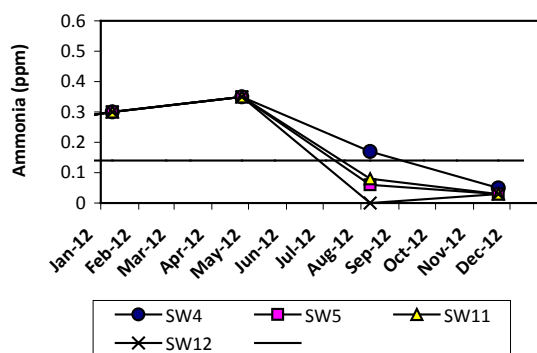


Figure 4.8: Surface Water Ammonia Levels Inagh River, SW7 and SW8

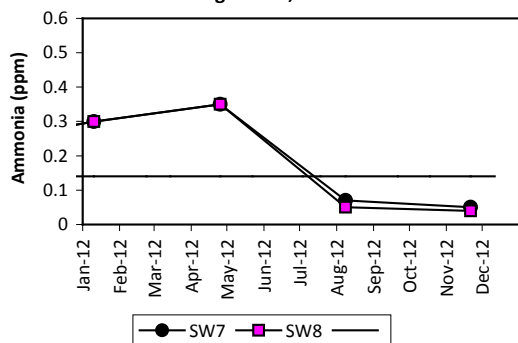
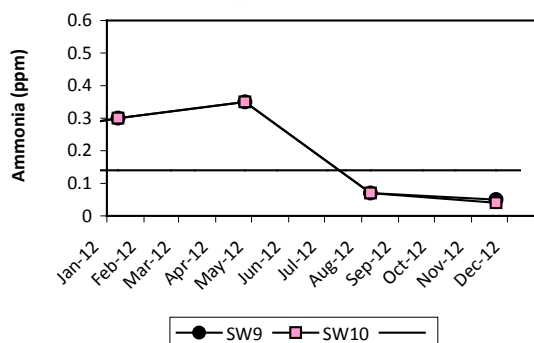
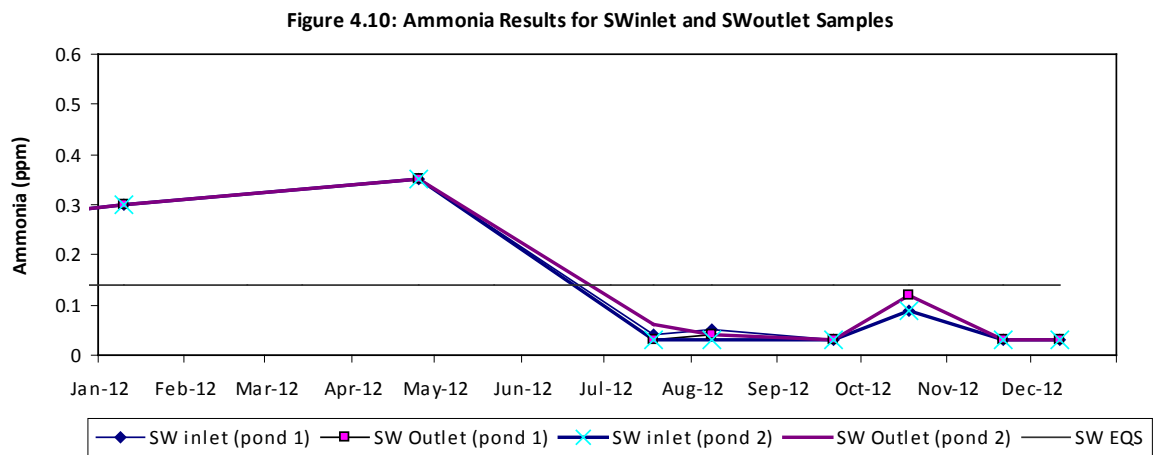


Figure 4.9: Surface Water Ammonia Levels Inagh River, SW9 and SW10



The detection limit for ammonia was 0.3ppm for the first round of sampling in January 2012, 0.35 for the second round in May and 0.03ppm for the latter half of the year. The majority of results were below method detection limits. No comparison can be made with the ammonia EQS for results obtained for the first half of the year, as the detection limit was greater than the EQS. Subsequent results were all below the EQS except for one upstream result on Stream 2 (SW4) in August 2012 which marginally exceeded the limit.

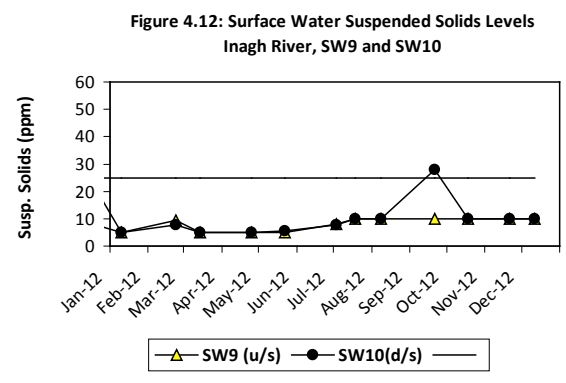
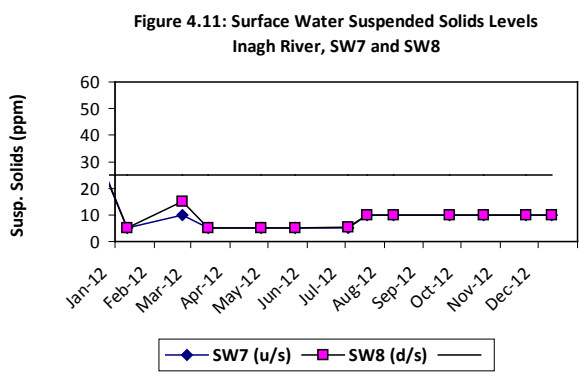
Ammonia levels in stormwater pond inlet and outlet samples are graphed below in figure 4.10:



As can be seen from the graph, where the ammonia detection limit was low enough to enable a comparison to be made, ammonia results were below the EQS for good status waters. Results for January and April 2012 were below detection limits but as mentioned earlier, the detection limit was too high to allow comparison with the EQS.

4.6.1.3 Surface Water Suspended Solids.

Surface water monitoring locations were visually inspected each week for turbidity, gross solids, colour and surface film. Monthly samples were analysed for suspended solids levels. Results for 2012 are graphed below in figures 4.11 to 4.15. The 25ppm suspended solids limit for Salmonid waters is included in figures 4.11 to 4.14 for comparative purposes only. The 35ppm licence limit for surface waters discharging from the site is shown on figure 4.15.



Inagh River suspended solids levels were below the 25ppm Salmonid limit throughout 2012. This limit is included for comparative purposes only; the Inagh river is not a salmonid river.

Suspended solids results for streams 1, 2 and 3 are shown in figures 4.13 and 4.14 below.

Figure 4.13: Surface Water Suspended Solids Levels Stream 1

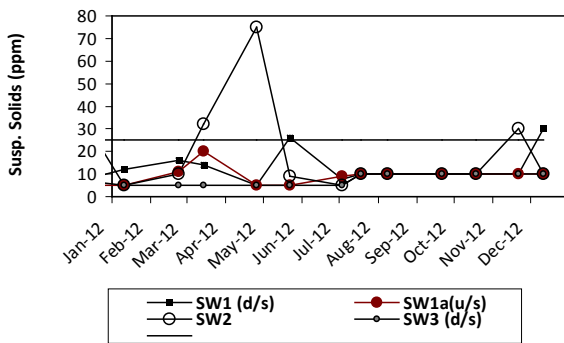
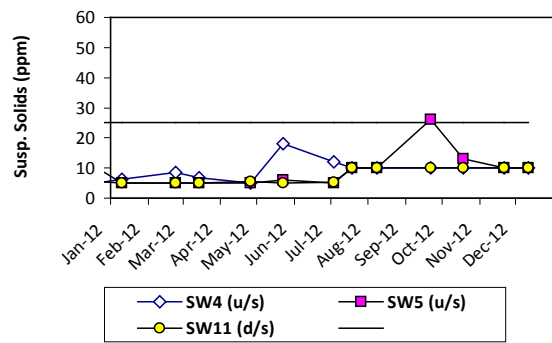


Figure 4.14: Surface Water Suspended Solids Levels Streams 2 and 3

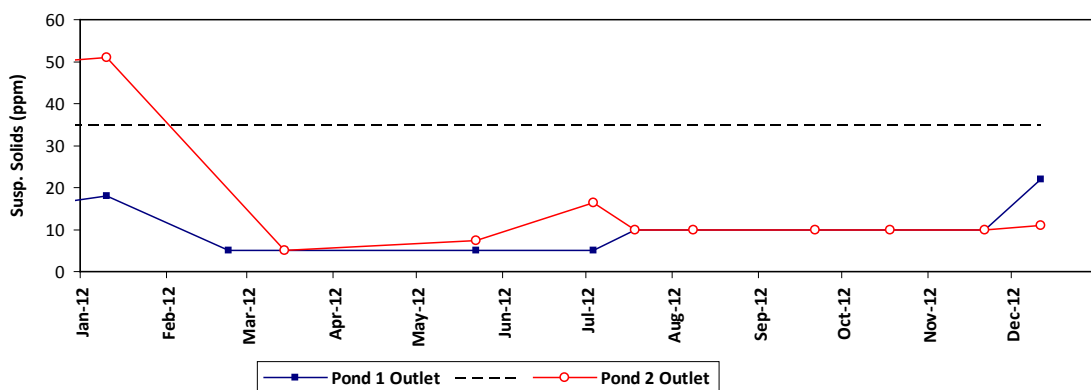


As can be seen from figure 4.13, suspended solids levels were above the 25ppm limit for Salmonid waters on a number of occasions during the year at SW2. This is a shallow channel flowing into stream 1. The water level in this channel is normally low except during very heavy rainfall. It is possible that the elevated suspended solids results here were simply a result of sediment becoming suspended during the sampling process.

Remaining results for streams 1 and 2 were within the 25ppm limit for salmonid waters.

Suspended solids levels at the outlet for stormwater ponds 1 and 2 are graphed below in figure 4.15. Also shown on the graph is the 35ppm licence limit.

Figure 4.15: Stormwater Pond Outlet Suspended Solids Levels



As Figure 4.15 shows, the outlet from both stormwater ponds was within the 35ppm suspended solids limit throughout 2012 with the exception of one result for Pond 2 in January 2012. This suspended solids exceedence was attributed to earthworks carried out in wet weather. The works were unavoidable as they were required in order to expedite cell capping. Site staff responded to the incident by cleaning out and replacing the sand in both of the sand filters receiving the discharge from pond 2. There were No further exceedences during the year.

4.6.2 Groundwater

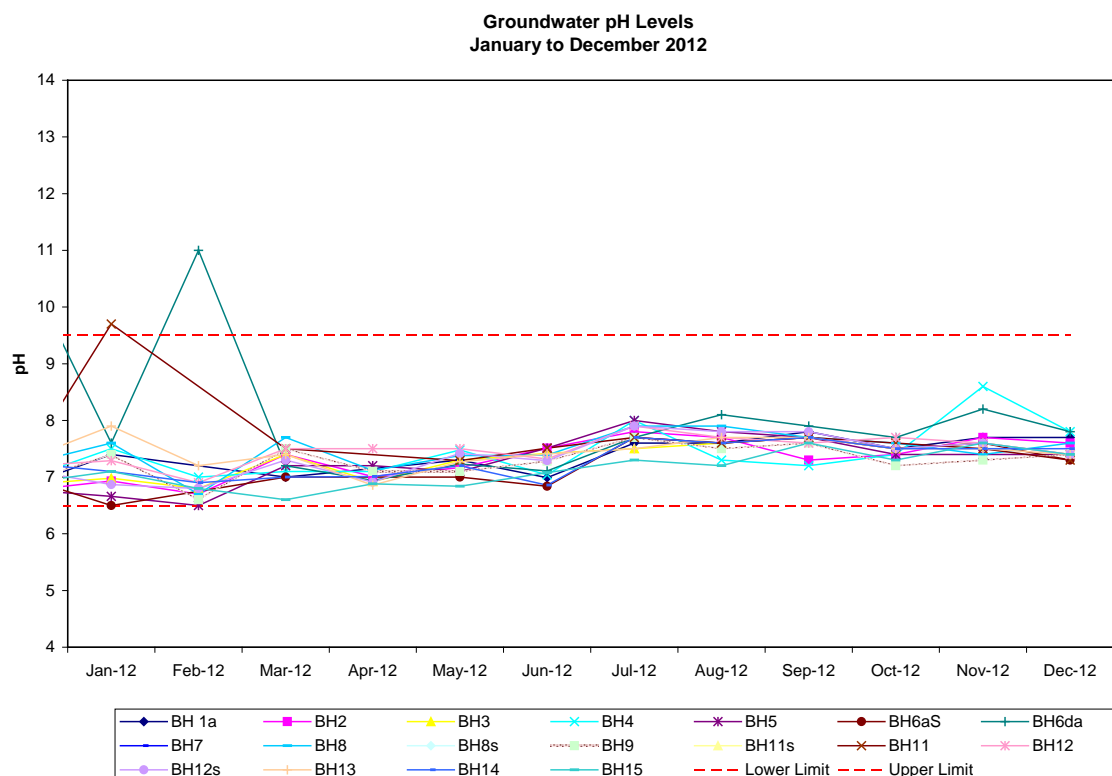
Groundwater monitoring was carried out on a monthly basis during the year at BH1a, BH2, BH3, BH4, BH5, BH6As and BH6Ad, BH8, BH9, BH11, BH12s, BH12d, BH13, BH14 and BH15. Four private wells were also sampled. Samples were analysed for the parameters and frequency specified in Schedule E5 of Waste Licence W0109-02. Results for key parameters are summarised in this report. Detailed results of all groundwater monitoring carried out during the year were submitted to the Agency in quarterly reports.

Where relevant limits exist, monitoring results are compared with the threshold levels specified in European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No 9 of 2010). The threshold levels given in columns 3 and/or 4 of schedule 5 are used for comparison. These thresholds are annual arithmetic mean levels. For groundwater metals, fluoride, cyanide and sulphate, only one result is available for 2012 as these parameters are monitored annually.

4.6.2.1 Groundwater pH:

Groundwater pH results from January to December 2012 are graphed below in figure 4.16. The original EPA Interim Guidance Value range for pH (6.5 – 9.5) is shown on the graph for comparative purposes. Limits for pH are not specified in S.I. 9 of 2010.

Figure 4.16



As can be seen from Figure 4.16, pH results were within the upper IGV for all groundwater samples with the exception of one anomalous elevated result for BH 11 in January and one result for BH6aD in February. pH levels in BH11 for the remainder of 2012 were in the neutral range. The elevated reading at BH6a is attributed to an historic lime contamination problem in the area, most likely from concrete runoff generated during

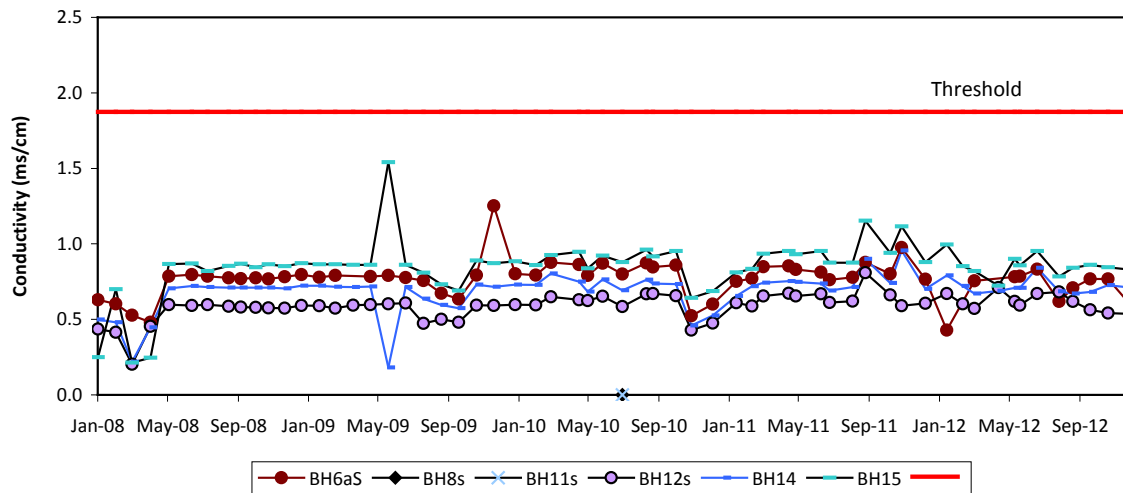
construction of the belowground well chamber as lime is not used anywhere on the site. Subsequent investigations after the Feb'12 incident revealed that the pH of the standing water in the well casing was elevated. This quickly returned to neutral after purging. Monitoring consultants were instructed to ensure that the recommended water volume is removed from all wells prior to sampling.

The lower IGW was not exceeded in any of the groundwater wells.

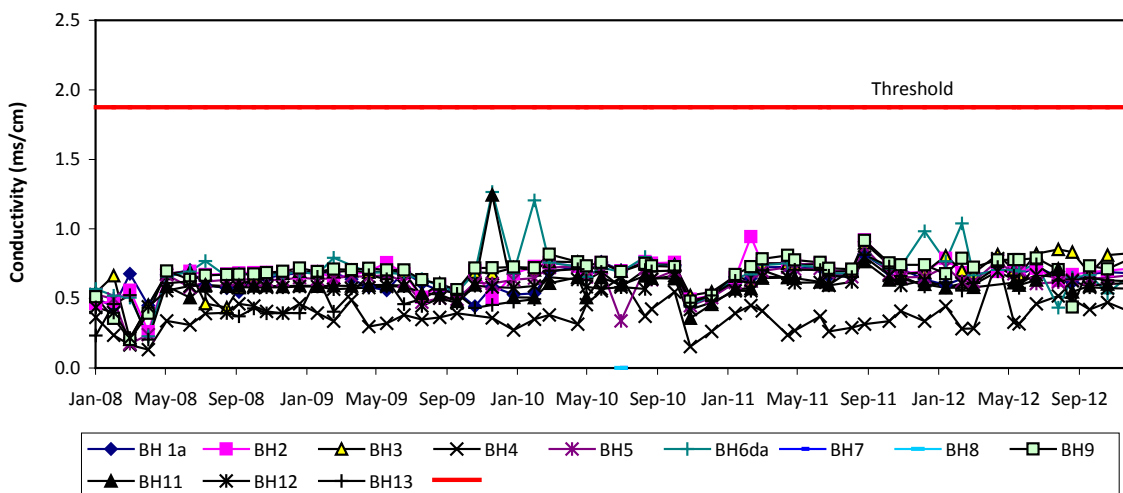
4.6.2.2. Groundwater Conductivity:

Groundwater conductivity results for 2008 to 2012 are graphed in figures 4.17 and 4.18. The threshold value of 1,875us/cm (from S.I.9, 2010) is shown on the graphs for comparative purposes (shown in ms/cm).

**Fig: 4.17 Groundwater Conductivity Levels
Overburden Wells**



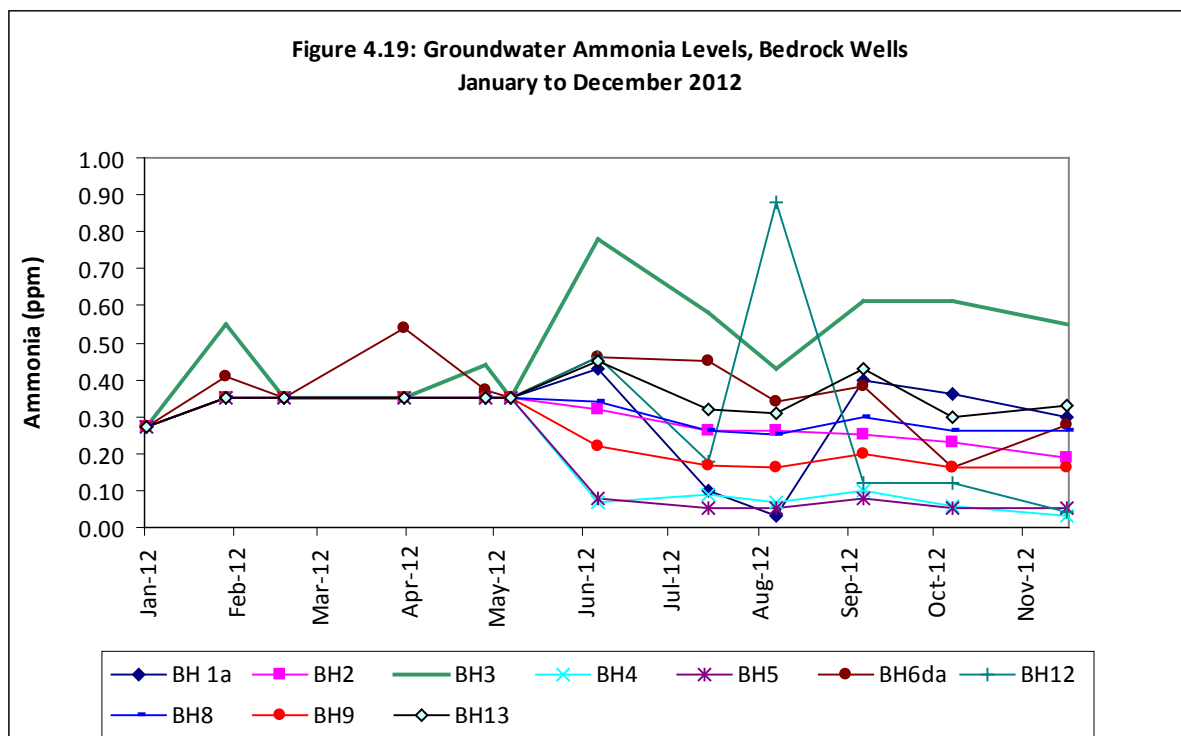
**Fig: 4.18 Groundwater Conductivity Levels
Bedrock Wells**

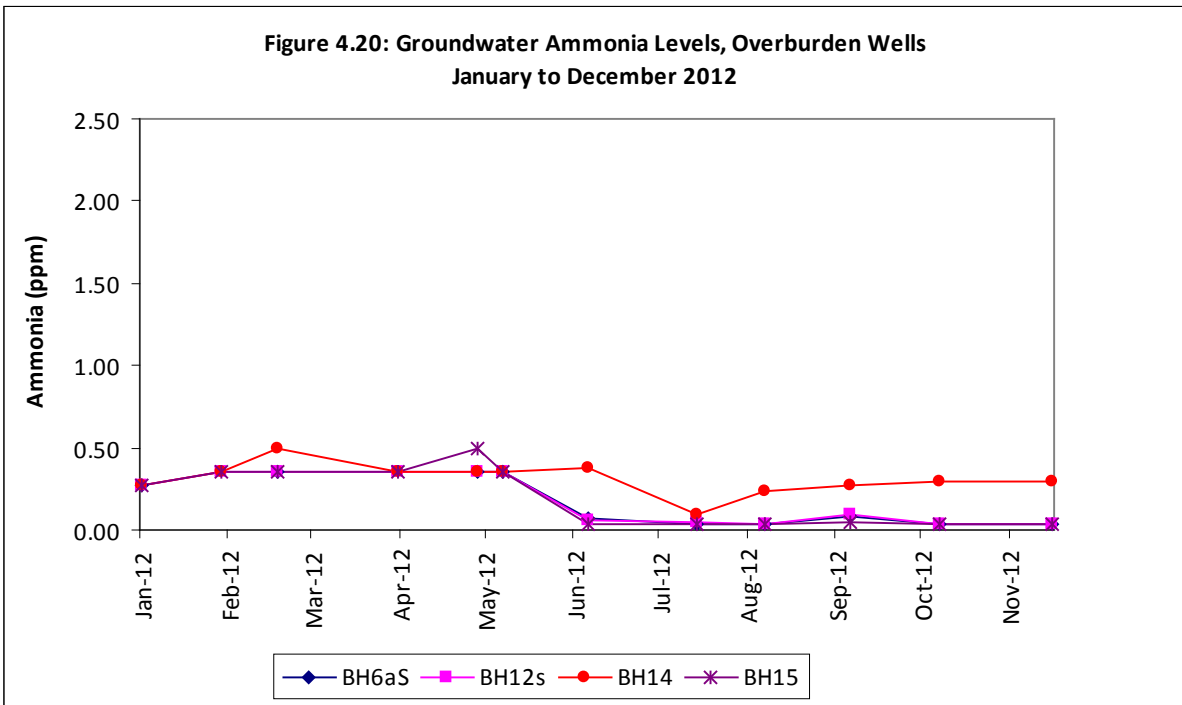


There have been occasional problems with elevated pH and conductivity levels in the area around BH6 in the past (see preceding paragraph). However, conductivity levels at all wells were satisfactory for 2012.

4.6.2.3 Groundwater Ammonia

Groundwater ammonia results for 2012 are graphed below in figures 4.19 and 4.20. The groundwater ammonia threshold is 0.175ppm (S.I.9, 2010).



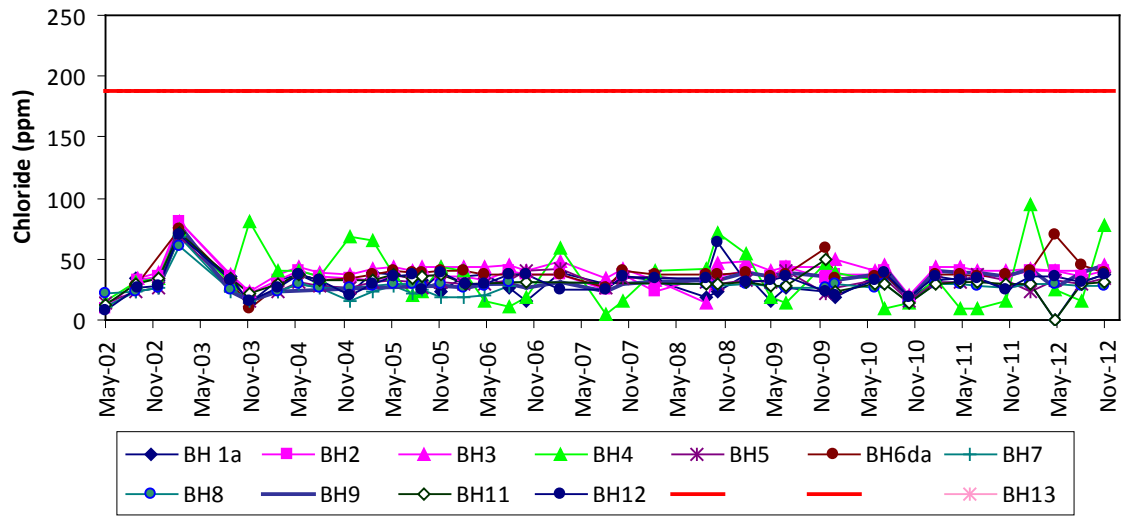


The ammonia method used by monitoring consultants in the first half of the year was not sensitive enough to enable a comparison of results with the threshold of 0.175ppm (the method detection limit was 0.35ppm). A more sensitive method was employed by consultants for the second half of 2012. Results were generally within the 0.175ppm threshold in downgradient wells BH4, BH5 and BH12s and in shallow crossgradient wells BH6aS and BH15. Levels in upgradient well BH9 were close to the threshold, with a mean result of 0.18ppm. Highest levels were detected in downgradient well BH3 and in crossgradient well BH6da. Elevated ammonia has been detected in groundwater at the site in the past, including in the deep upgradient well originally intended to provide the site's drinking water supply. Due to the elevated ammonia in the water supply well, bottled water has been used as the drinking water supply since prior to the landfill opening in September 2002. The elevated groundwater ammonia is most likely due to the use of fertiliser when the forest was originally planted in the mid 1980's.

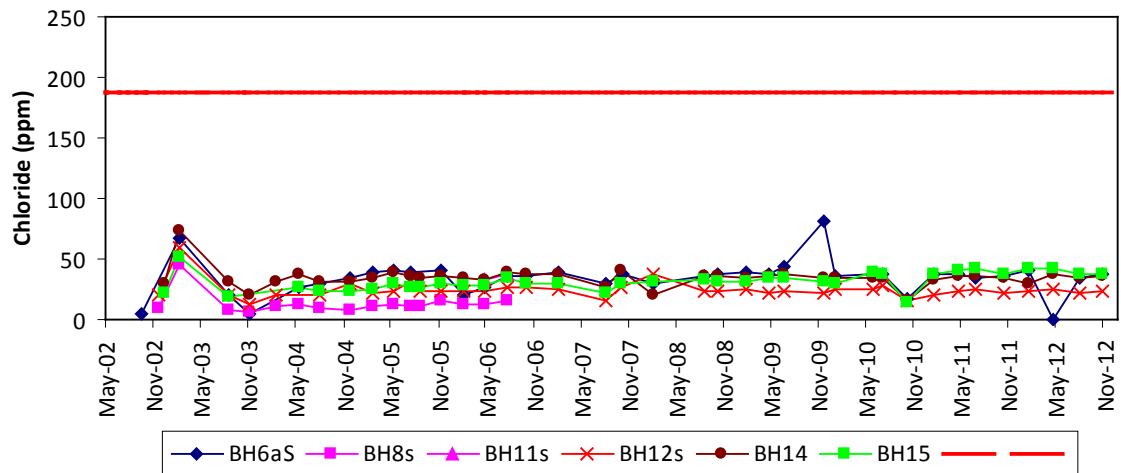
4.6.2.4 Groundwater Chloride.

Groundwater chloride levels from 2002 to 2012 are graphed in Figures 4.21 and 4.22. The chloride groundwater threshold of 187.5ppm is included in the graphs for comparative purposes.

**Figure 4.21: Groundwater Chloride Levels
Bedrock Wells, 2002 to 2012**



**Figure 4.22: Groundwater Chloride Levels
Overburden Wells, 2002 to 2012**



As can be seen from the graphs, groundwater chloride results have not exceeded the groundwater threshold level of 187.5ppm since monitoring commenced at the site.

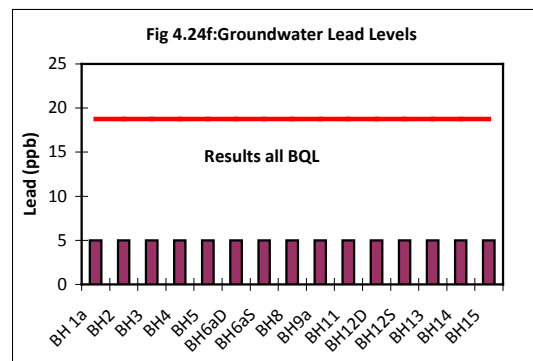
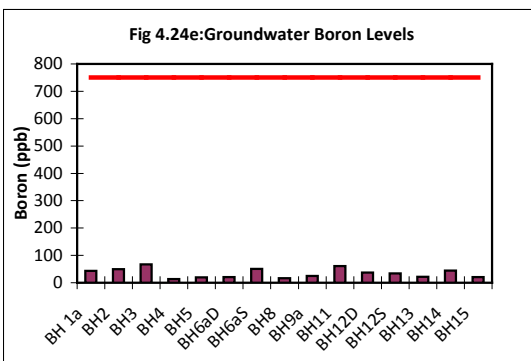
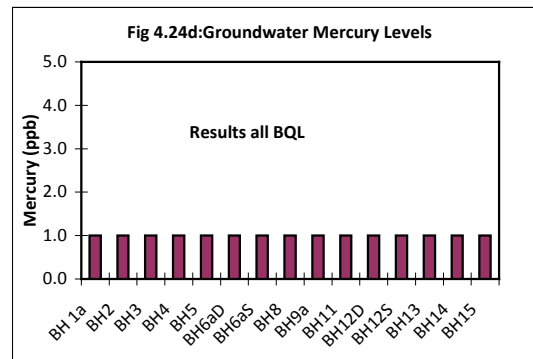
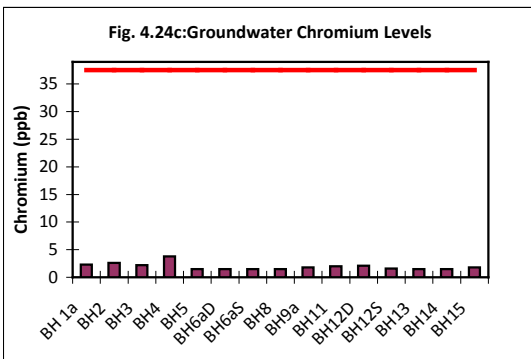
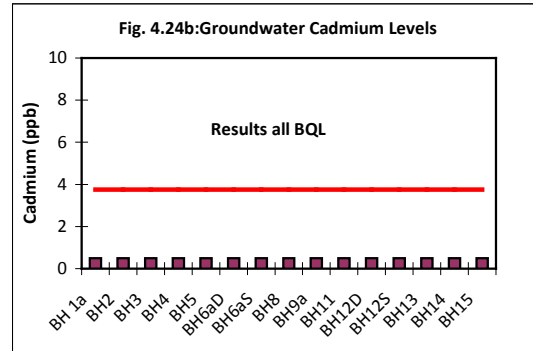
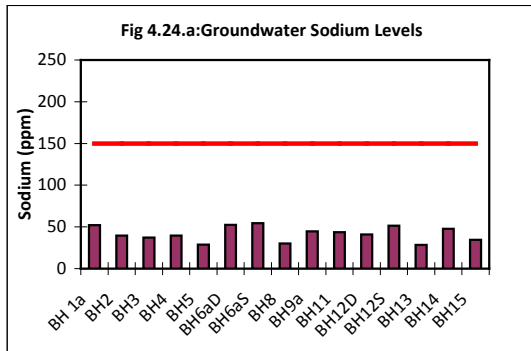
4.6.2.5 Groundwater volatile and semi-volatile organic compounds

Groundwater samples were analysed for VOC's and sVOC's in November 2012. Results were below method detection limits for all samples (<1ppb).

4.6.2.6 Groundwater metals levels:

Groundwater samples were analysed for metals in November 2012. Results are graphed below in figures 4.24a to 4.24f.

Figure 4.24a to 4.24f; Groundwater Metals Levels (2012)



Note: The limits shown on the graphs are the groundwater threshold values specified in columns 3 / 4 of Schedule 5 of SI 9 of 2010.

As can be seen from the graphs, sodium, cadmium, chromium, boron and lead levels were all below the relevant groundwater threshold levels. Although all groundwater mercury results were below detection limits, the detection limit was above the threshold of 0.75ppb.

Results for cyanide and sulphate (not shown) were also below the relevant threshold levels for all samples.

4.6.3 Leachate.

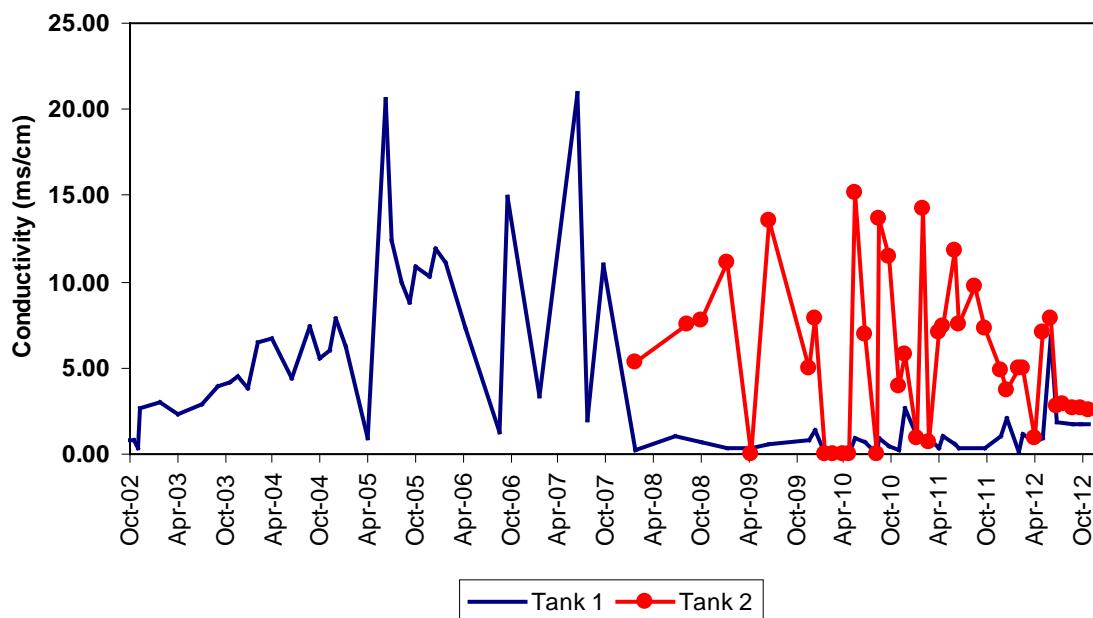
Leachate generated on site is discharged to one of two storage tanks for transport to a designated wastewater treatment facility. An underground storage tank (tank 1) was installed when the facility was initially developed. Up to November 2007, all leachate generated on site was discharged to this tank, including landfill leachate from within the waste body and runoff from designated concrete areas of the civic amenity site. A second tank (Tank 2) was installed above ground in November 2007 as part of the Phase 3 construction project. This tank now receives all landfill leachate from the waste body. Tank 1 receives leachate/potentially-contaminated runoff from the composting area and the lower level of the civic amenity site only.

Results for leachate tanks 1 and 2, for conductivity, BOD, COD and ammonia, are graphed in figures 4.23 to 4.28 of this report. Detailed results were submitted during the year in the quarterly environmental reports for the facility.

4.6.3.1 Leachate Conductivity

Leachate conductivity levels are graphed in figure 4.24. As would be expected with the diversion of higher strength landfill leachate away from the old leachate lagoon (tank 1) in early 2008, conductivity levels in tank 1 reduced significantly in 2008 and have remained low since. Higher levels were observed in tank 2, which receives only landfill leachate. Conductivity is within the range expected for landfill leachate.

**Figure 4.24: Leachate Conductivity Levels
2002 to 2012**



4.6.3.2 Leachate BOD and COD

Leachate BOD and COD results for 2012 are graphed below in figures 4.25 and 4.26.

Figure 4.25: Leachate BOD Levels
January to December 2012

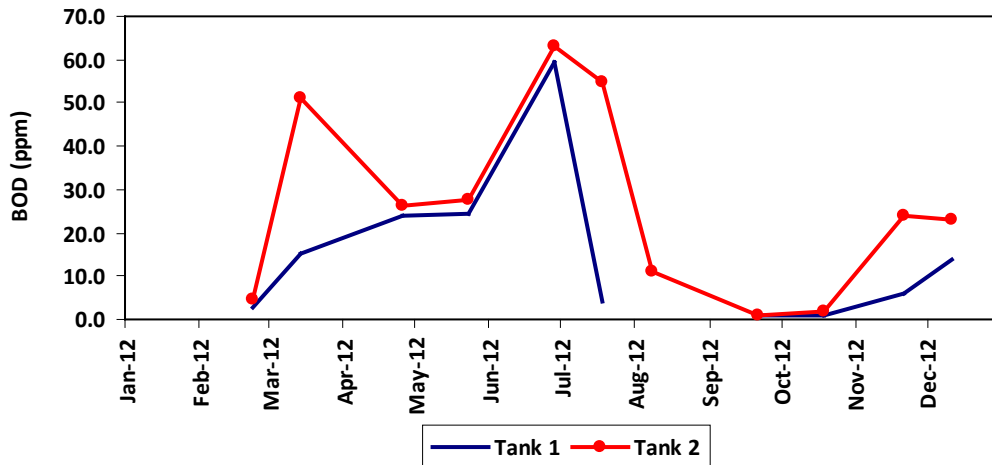
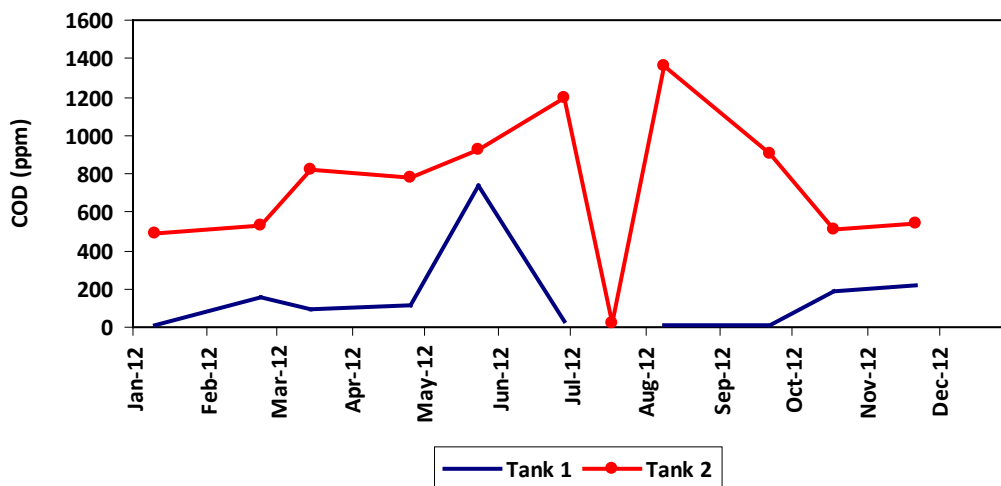


Figure 4.26: Leachate COD Levels
January to December 2012



As can be seen from the graphs, COD levels were lower in tank 1 than in tank 2 but BOD levels were quite similar in both tanks. This is a change from previous years, where landfill leachate BOD levels (tank 2) were generally significantly higher than CA site runoff BOD levels (tank 1). This unusual trend will be monitored during 2013 with monthly leachate BOD and COD analyses.

The leachate BOD: COD ratio is a useful tool for assessing biodegradability. Ideal ratios should be in the region of 0.3 or greater. The BOD: COD ratio for landfill leachate (tank 2) from February 2009 to December 2012 is graphed below in figure 4.27.

Figure 4.27: Leachate BOD:COD Ratio
January 2009 to December 2012

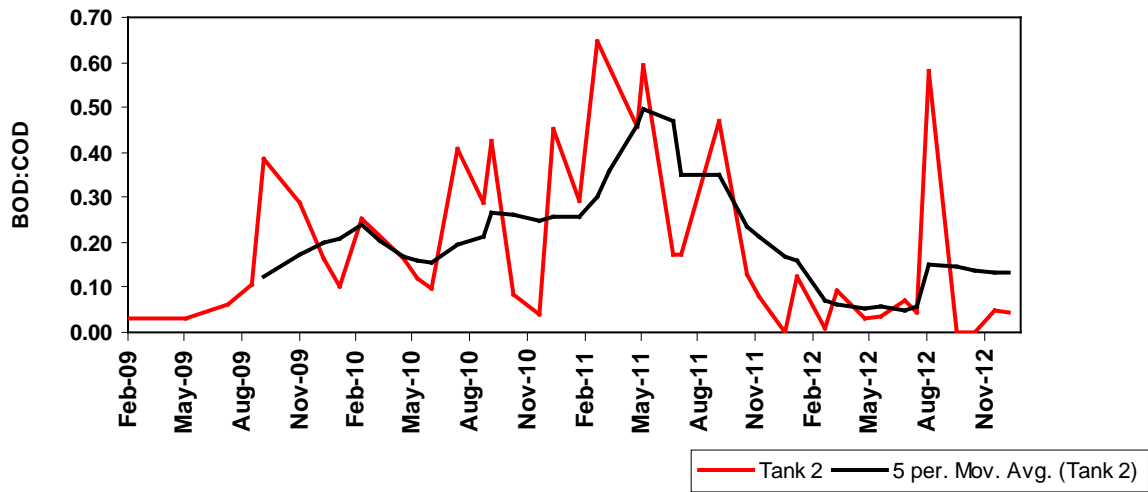
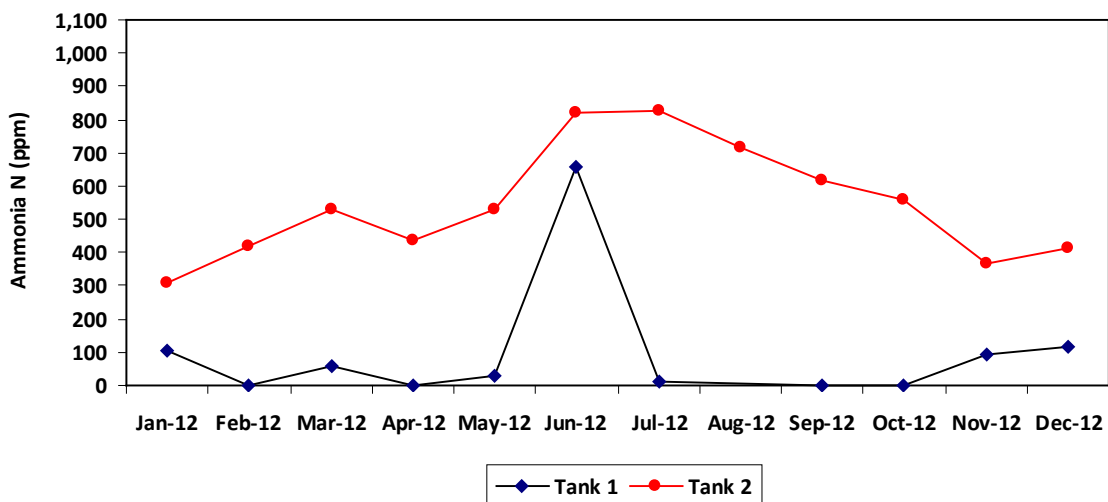


Figure 4.27 shows a drop in the BOD: COD ratio in 2012, due to the unusually low BOD results obtained during the period.

4.6.3.3 Leachate Ammonia Levels.

Leachate ammonia results from January to December 2012 are graphed below in figure 4.28. As can be seen from the graph, ammonia levels in tank 1 were significantly lower than in tank 2 (landfill leachate tank). Ammonia results were within the expected range for landfill leachate.

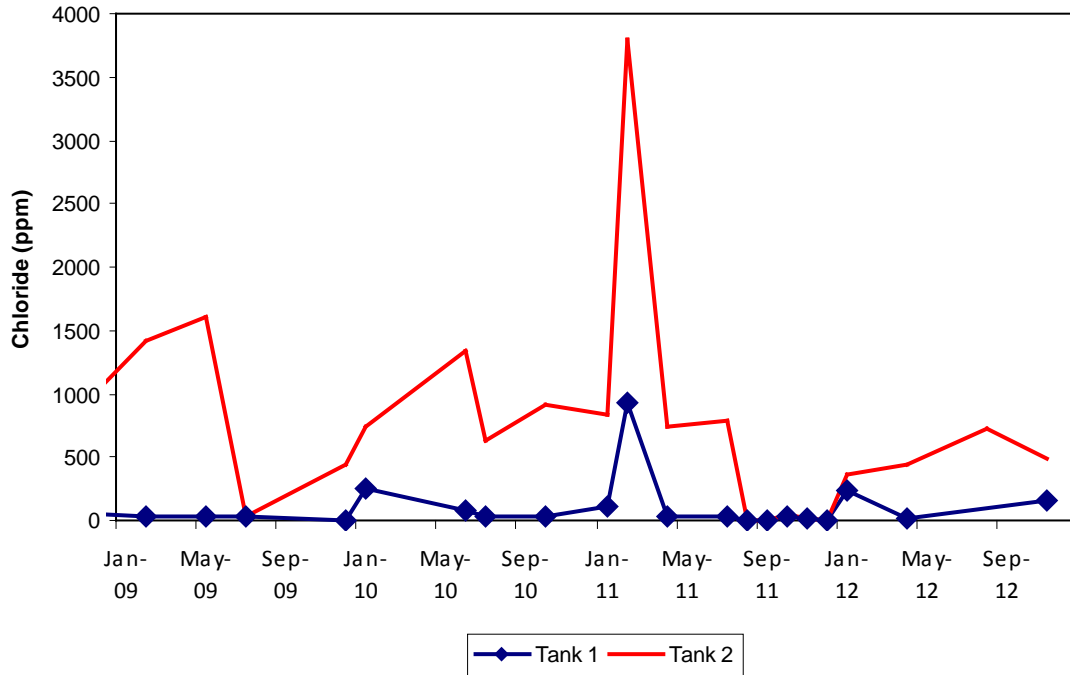
Figure 4.28: Leachate Ammonia Levels
January to December 2012



4.6.3.4. Leachate Chloride Levels

Leachate chloride levels are graphed in figure 4.29 for the period January 2009 to December 2012. With the exception of one very elevated result in January 2011, chloride levels in the landfill leachate were generally below 1,500ppm. As expected, CA site runoff levels (tank 1) were considerably lower.

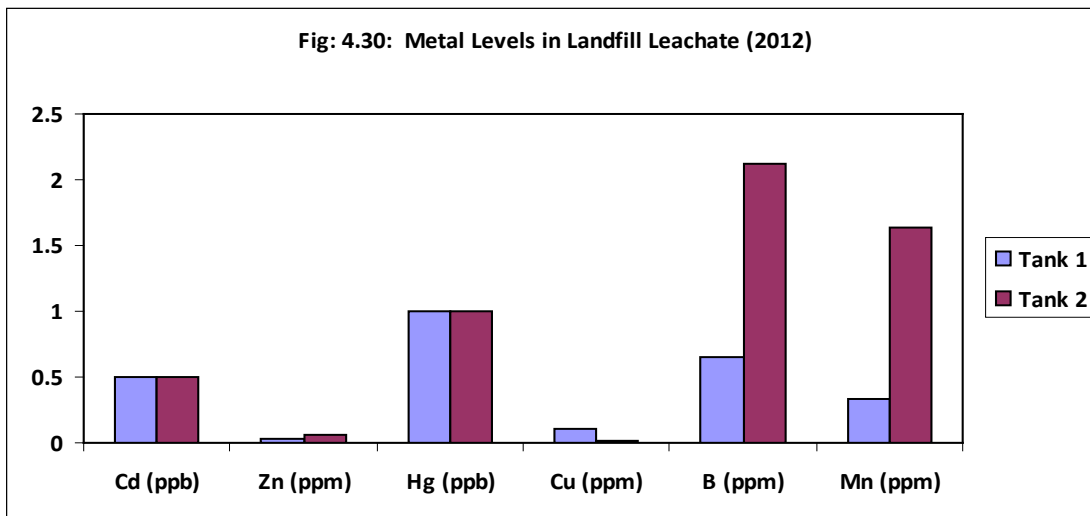
**Figure 4.29: Leachate Chloride Levels
2009 to 2012**

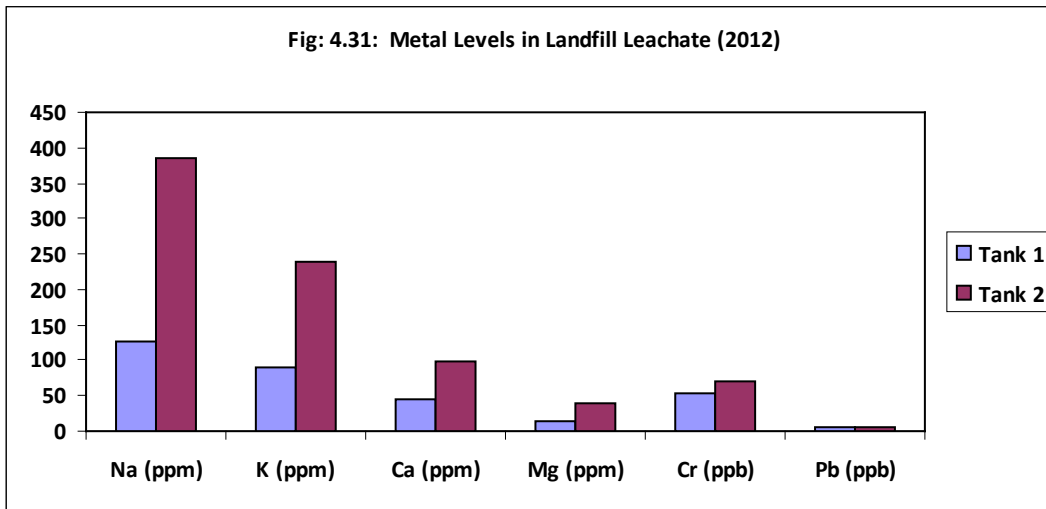


4.6.3.5. Leachate Metals

Results for leachate metals levels are shown below in figures 4.30 and 4.31. Again, results were generally higher in tank 2:

Fig: 4.30: Metal Levels in Landfill Leachate (2012)





In summary, levels of leachate parameters were within the ranges expected for municipal waste landfills. Levels of most parameters were higher in the landfill leachate tank (tank 2) than in the civic amenity site runoff tank (tank 1). Variations in BOD, COD, conductivity and ammonia results during the year were most likely to be due to changes in rainfall level.

4.7 Biological and Ecological Monitoring.

Biological and ecological monitoring surveys were completed during the year in accordance with Condition 9.15 of W0109-02. Details have previously been submitted in separate reports to the Agency

4.7.1 Biological Monitoring:

. The Biological Monitoring survey was carried out on the 17th July 2012. The report concludes that that there is no evidence of an impact from the landfill on surface waters.

4.7.2 Ecological Monitoring:

A general habitat and vegetation survey was carried out on the 25th May 2012. As for previous years, the survey report concluded that while there are no habitats of significant conservation value within the site, the site does provide useful habitat for local wildlife including such species as the common frog and badger. Furthermore the diversity of species within the site is increasing as new habitats are being established.

Two countryside bird surveys were carried out during the year, on the 5th May and on the 12th June. These surveys have been conducted at the facility since 2002. Twenty-nine bird species were recorded in 2012, which is within the range of previous years. No new species were recorded.

Two surveys for Hen Harriers were carried out on the same dates as the countryside bird surveys. No sightings were made.

With the agreement of the Agency, the mammal survey frequency was reduced to once every two years in 2009. The next survey is due to be carried out during 2013.

4.8 EPA Site Visits

The following is a summary of EPA site visits made during 2012:

- An Agency inspector visited the site in April 2012 on foot of a reported incident (compactor container fire). A number of observations were made but no non-compliances were received.
- The EPA inspector for the facility carried out an unannounced site inspection in July 2012. A number of observations were made but no non-compliances were received.
- EPA monitoring personnel were on site in August 2012 to carry out groundwater and surface water monitoring at the facility. Results were similar to those obtained on behalf of Clare County Council by monitoring consultants.

5. WORKS PROGRAMME 2012/2013

5.1 Development Works carried out during 2012

Site development works that were carried out during the reporting period are outlined in Table 5.1.

TABLE 5.1: LIST OF DEVELOPMENT WORKS CARRIED OUT DURING 2012 (NON-EXHAUSTIVE).

Site Development Works	Completion Date
Modification of cell 9 recirculation system to a rainwater irrigation system as for cells 12-13	January 2012
Tree felling in phase 4/5 in preparation for interim restoration works	January 2012
Cleaning of sand filters	February 2012
Earthworks in Phase 4/5 to shape slopes/reduce slope steepness	July to August 2012
Installation of final clay cap on cell 13	July 2012
Seeding of cell 13 and phase 4/5 area	August 2012
Extension of gas trunk main to include cell 13 wells	August 2012
Permanent connection of cell 13 vertical wells. Wells are currently connected on a temporary basis. Temporary connections have been done to a high standard to minimise the risk of breaks in connection points.	August 2012
Application to divert part of lower level CA site stormwater away from leachate collection system (by means of changes to abandoned vehicle storage area).	July 2012
Modification to abandoned vehicle storage area to minimise leachate volumes	November 2012

The bund integrity and water tightness test was due to be carried out in late 2012. Due to inclement weather, the test could not be carried out until March 2013.

5.2 Proposed Development Works 2013

Proposed site development works for 2013 are set out in Table 5.2 below. Each of these items requires EPA approval to implement:

TABLE 5.2: PROPOSED DEVELOPMENT WORKS FOR 2013

Description of Works	Date
Weighbridge automation	April/May 2013
Changes to existing layout of civic amenity site	April/May 2013
Application to further reduce CA site leachate levels (lower level)	Summer 2013

5.3 Progress to Site Restoration

A Restoration Plan was submitted to the Agency in April 2003. The plan covered the following issues related to the restoration of the site, including:

- Final landfill profile
- Final cap construction
- Access roads
- Proposed land use
- Fencing and security
- Environmental monitoring and pollution

A revised interim closure plan was issued in December 2011 to address the interim closure of the landfill in November 2011, after completion of filling of phase 3. By the end of December 2012, the requirements of the interim plan had been complied with. A final CRAMP will be submitted to the Agency when a decision has been reached as to whether or not to close permanently without excavating the final two phases.

5.4 Site Survey and Remaining Void Space

The site is surveyed each year to ensure that the landfill profile does not exceed the licence specification. The 2012 profile was carried out in late 2012.

6. FINANCIAL ASPECTS

6.1 Annual Budget and Operating Costs

The annual budget for the Central Waste Management Facility for 2011 is outlined in Table 6.1 below.

TABLE 6.1: SUMMARY OF FINANCIAL PROVISIONS 2012

Item	2012 budget
CWMF - Landfill operation	€321,555
CWMF - Recycling centre operation	€406,433
CWMF - Compost operation	€24,394
Total	€752,382

6.2 Report on the use of a portion of the waste charges and gate fees on appropriate environmental improvement projects.

The Community Fund was a result of the Government Policy Statement on waste management “Changing Our Ways” - Local authorities working in partnership with local communities to mitigate the impact of waste management facilities on these communities through appropriate environmental improvement projects. An amount of €1.27 (index linked) per tonne of waste accepted for disposal at the landfill was allocated to the fund.

There is a formal structure in place for distribution of the Fund, which was agreed with the Community Liaison and Monitoring Committee (CLMC). Eligible local communities are Inagh, Cloonanaha and Kilnamona. A weighting criteria is applied in the assessment of applications, with projects nearest to the facility carrying the greatest weighting. On foot of a review and recommendations by Exodea Europe Consulting Ltd, three members of the CLMC sit on the adjudication panel along with three external members.

Tranche 4 was distributed in 2012, covering the 2007-2008 operating period. Funding was allocated to 7 of the 11 project submissions, with a total allocation of €100,000. This brings the amount of the distributed fund to date to €357,755 over four tranches. The remaining monies from Tranche 4 (€40,775) have been reserved for distribution as part of Tranche 5, which will be advertised during 2013

6.3 Review of Environmental Liabilities.

An environmental liability risk assessment was carried out for the facility during 2009. The report of this assessment was submitted to the EPA during 2009. Clare County Council submitted revised closure costs as part of the interim CRAMP submitted to the Agency in December 2011. Ongoing measures to protect against the risk of environmental damage are outlined in the Site Procedures Manual and in the EMP for the facility (see also section 7.2 below).

7. REVIEW

7.1 Nuisance Controls.

Controls are in place to minimise nuisance from litter, birds, vermin, fires, vehicles, odours, dust, visual intrusion and noise associated with activities at the site. A complaints register is maintained at the facility, located in the site administration office. Control measures are described below under separate headings for each nuisance type:

7.1.1 Litter Control

Daily litter inspections are still ongoing within the site. Loose material is gathered and disposed of regularly to keep the site tidy. The main roads outside the facility are checked for litter during the daily odour patrol. Cleanups are arranged with the assistance of the Area Roads staff. For health and safety reasons, this work must be carried out by a team under the supervision of suitably trained staff.

7.1.2 Birds

Clare County Council employed Falcon Bird Control to control bird activities on site up to completion of earthworks on the last filled cell, in July 2012.

7.1.3 Vermin

Curtin Pest Control are employed by Clare County Council to control vermin. They carry out monthly inspections on site and maintain a baiting programme to control rat or mice infestations. Details of the inspections and baiting programme are kept on file at the facility.

7.1.4 Fires

Adequate fire fighting equipment capable of handling small outbreaks of fire is maintained on site. Site staff are trained in the use of the equipment. In the event that a fire breaks out, it will be treated as an emergency and dealt with immediately. The county Fire Brigade and the EPA will be contacted in the event of any fire incident.

7.1.5 Vehicles

All roads around the Civic Amenity area, the access roads to the flare and the old stormwater pond are tarred. Access roads around the landfill footprint are stone-coated. Until the completion of earthworks on the last filled cell, these roads were regularly cleaned and scraped with fresh stone applied as required. However as heavy vehicles no longer access internal roads around the landfill area, the haul roads around the landfill footprint are not currently maintained except for regular wetting to suppress dust during periods of prolonged dry weather.

7.1.6 Odours

Waste odours:

The landfill is closed. Small quantities of wet waste are accepted in the civic amenity site, for temporary storage in a closed container prior to removal by a third party contractor. This container is closed and sealed at the end of every work shift and is removed from site twice per week. While three complaints of waste odour were made by a local resident in 2012, no waste odours have been detected by the odour patrol or by site staff since November 2011.

Landfill Gas Odours:

Sealing of the final filled cell with LLDPE liner was completed in mid January 2012. The clay cap was applied to the cell in July 2012. Associated works to install a permanent gas extraction network were completed in August 2012. Landfill gas odours are controlled by continuous extraction from 70 gas wells located at spaced intervals throughout the waste body. Potential odours from the main point sources (leachate riser pipes) are controlled by means of specially-designed seals on the pipe ends combined with gas extraction from the pipes. Potential odours from the wells at the weakest point where the wells exit the LLDPE liner are controlled via outer rings containing wetted bentonite clay.

Daily odour patrols are still carried out at present, by a member of site staff accompanied by a Council employee based in the environment section in Ennis. Twice per month, the patrol is accompanied by an Environmental Health Officer from the HSE. No offsite odours have been detected since 4th January 2012. No onsite odours have been detected since August 2012, when additional works were carried out to improve gas extraction behind the cell 13 riser pipe. A monthly odour report is completed by site staff and retained on file in the administration office. This report provides useful summary information in relation to odour performance and the effectiveness of the various odour control measures employed at the facility.

7.1.7 Dust

Site access roads are water-sprayed in dry weather to suppress dust. Ambient dust monitoring is carried out three times per annum at four boundary locations in accordance with the conditions of the waste licence. All results for 2012 were within the ambient dust limit of 350mg/m² per day. See section 4.4 for further details.

7.1.8 Visual Intrusion

The principle method of limiting visual intrusion is by the retention of a screening belt of trees around the site. The site entrance and access roads are also landscaped to minimise visual intrusion. The earthen embankments surrounding the landfill area to the east, west and north of the site were raised some years ago and new screening embankments were constructed as part of the phase 3 development works. All embankments have been grassed and planted with Scots Pine and Sitka Spruce.

7.1.9 Noise

Two noise surveys are carried out each year at noise sensitive locations adjacent to the facility. Results indicate that noise generated by activities at the site complies with licence limits (see section 4.5 for further information).

7.1.10 Complaints Register

Details of all complaints are recorded in the Complaints Register. This register is located in the site administration office. The register includes the name of the complainant, the nature of the complaint, the date of the complaint and the actions taken to remedy the complaint. The site manager signs off completed complaint forms. The Register is available for inspection by members of the public. See Section 7.5 for further details.

7.2 Landfill Environmental Management Plan

The Site Environmental Management Plan (EMP) was updated during 2010 to reflect changes in operation of the facility since the last update. The schedule of Objectives and Targets for 2010-2012 are summarised below. The EMP will be revised during 2013 to take account of the landfill closure:

7.2.1. Objective 1: Improve gas abstraction from capped and active cells:

This objective was met. The level of abstraction from capped cells was improved by means of the following elements:

- Installation of specially designed end caps on all leachate riser pipes
- Installation of a ring main system around the site, replacing the original branched system
- Installation of built wells within the last active cell; these wells sit directly on the base of the cell and have since been found to be highly effective in gas removal from the cell.

A very high level of abstraction was also achieved from capped cells, in particular cell 13, by means of the following:

- Installation of flux box type extraction units over the two deepest built wells to separately extract from the head space as well as directly from the wells.
- Installation of north-to-south horizontal extraction lines, each line separately connected to a dedicated gas extraction line, with control valves and dewatering points for each of the horizontal lines.
- Installation of a main extraction pipe dedicated to active cell extraction, equipped with large gravity knock-out pot.
- Installation of additional extraction below the drainage stone layer on the intercell bund.
- Use of a temporary flare to burn off the poorer quality gas from the active cell

7.2.2. Objective 2: Provision of separate organics collection in Civic Amenity Area.

With the closure of the landfill in November 2011, this objective has been shelved.

7.2.3. Objective 3: Reduce the tonnage of leachate removed from the facility.

Leachate generated on site is tankered to wastewater treatment plants at Lisdoonvarna and Sixmilebridge for treatment. The most successful measure carried out to minimise leachate volumes when the landfill was operational, was by means of installation of rainflaps on the side slopes of the active cells.

Measures to reduce leachate levels generated in the civic amenity site included:

- Diversion of stormwater from the higher level of the civic amenity site to the stormwater pond from the leachate lagoon.
- Modifications to the abandoned vehicle storage area to divert clean runoff from the adjoining slope away from leachate collection.

7.2.4. Objective 4: Progress project on installation of landfill gas engine.

A preliminary report on landfill gas utilisation at Ballyduff Beg was completed by Tobin Consulting Engineers on behalf of Clare County Council in 2006. A supplementary report was issued in 2008, taking into account targets for diversion of biowaste from landfill and the impact of this on methane generation at the facility. An application was submitted to ESB Networks in August 2010 for a grid connection for a 1MW gas engine at the facility. A connection agreement offer was received in 2010, at a cost of close to 1 million euro. This cost has placed a significant economic barrier to the landfill gas utilisation project. However Clare County Council is continuing to investigate alternative uses for the landfill gas.

7.2.5. Objective 5: Progress ISO 14001.

This objective was set on the basis that the commercial landfilling operation would continue at the facility. However as the landfill is now closed, this objective is no longer highly relevant to the site. The Council considers that ongoing review and revision of the existing EMS will be sufficient to ensure the ongoing effective management of the site in compliance with the waste licence.. A summary of SOP's updated during 2012 is included in table 7.9. Further details on site SOP's are provided in appendix 8.6.

7.3 Programme of Public Information

The following information is held in public files at the site offices and is available for the public inspection.

- A copy of the waste licence.
- All correspondence from the Agency relating to the facility.
- All correspondence from Clare County Council to the Agency relating to the facility.
- Copies of quarterly monitoring reports.
- Copies of annual environmental reports (AER).
- Copy of all procedures relating to the facility.
- Incident reporting files.
- Complaints Register.

A community liaison and monitoring committee (CLMC) was established when the facility opened. The purpose of the CLMC is to provide a forum for the local community to raise issues in relation to, and to receive regular updates on, the operation of the facility. The committee consists of members of the local community and local Councillors. While the landfill was operational, the CLMC met every one to two months in the Inagh National School hall. Since the interim closure of the landfill, the meeting frequency has been reduced to Quarterly. CLMC meetings afford members of the public the opportunity to ask questions, to comment on site operation and to seek information/clarification as required. The meeting also enables Clare County Council to pass on any information regarding the operation of the facility during the preceding month and regarding planned future projects.

In addition to attending the CLMC meetings, Clare County Council personnel working at or associated with the site are available to meet with members of the public and answer queries regarding the facility if requested.

7.4 Management and Staffing Structure

The current management structure is outlined in the chart in Appendix 8.3.

7.5 Environmental Incidents and Complaints

Condition 3 of the waste licence requires that the licensee shall make written records of environmental incidents. When incidents arise, completed incident reports are forwarded to the EPA by fax and hard copy. A list of the incident reports submitted during the reporting period is provided in appendix 8.4. A summary of the incident numbers and types is provided in table 7.9 below:

TABLE 7.9: SUMMARY OF INCIDENTS ARISING IN 2012

Nature of Incident	Number of Incidents
Odour detected offsite during daily odour patrol:	1
Leachate levels:	1
Flare carbon monoxide levels	1
SCADA / Equipment malfunction:	2
Weighbridge out of action	1
Perimeter well gas levels:	12
Elevated suspended solids levels	2
Waste container fire	1
Groundwater pH	2
VOC exceedence	1

Condition 3 of W0109-02 requires that the licensee shall make written records of all complaints. Details of complaints received during 2012 are summarised below.

Table 7.10: Summary of Complaints Received During 2012.

Date	Details of Complaint and Corrective Actions Taken
9 th January 2012	Complaint of gas odour on the 9 th January. The source of the odour was identified as being due to removal of the extraction line from one of the gas wells during the final stages of cell lining. Well was sealed up by the end of the workday, which resolved the problem.
26 th April 2012	Complaint of gas odour on the 23 rd and 24 th April. Complaint was investigated and no cause could be identified. No additional follow-up action was considered necessary at this time.
Received during June 2012 CLMC meeting	Complaint of waste odour on the last three Saturdays. No cause could be identified. It is standard practice at the site to ensure that the waste container is sealed at the end of every workshift and emptied once to twice per week. No waste odours have been detected by the odour patrol either onsite or offsite. No further action considered necessary at this time.
Received during September 2012 CLMC meeting	Complaint of waste odour on the 18 th August. No cause could be identified. It is standard practice at the site to ensure that the waste container is sealed at the end of every workshift and emptied once to twice per week. No waste odours have been detected by the odour patrol either onsite or offsite. No further action considered necessary at this time.
16 th November 2012	Complaint of gas odour on the 15 th November. Complaint was investigated and no cause could be identified. No gas odours have been detected by the odour patrol either onsite or offsite. No further action considered necessary at this time.

7.6 Waste Reduction and Recovery

7.6.1 Civic Amenity Centre

In order to maximise waste recoveries in the area, the capacity of the civic amenity centre at the CWMF has been expanded over the years to include additional streams such as plate glass, bulky plastic, metal and timber items, household green waste and household inert rubble. The list of materials now accepted at the facility is provided below:

- Cardboard and paper
- Plastic bottles
- Glass bottles
- Steel and aluminium cans
- Timber items
- Disposable Light bulbs
- Waste engine oil
- Car batteries
- Paint/Varnish/pesticides etc
- Household green waste
- Tetrapaks
- Hard plastic
- Sheet glass
- Large metal items
- Textiles
- Fluorescent tubes and long-life bulbs
- Waste cooking oil
- Household and dry cell batteries
- WEEE

7.6.2 Composting Facility

Garden waste composting commenced in January 2006. Members of the public bring clean green waste (e.g. grass cuttings, hedge trimmings, leaves) to the CWMF CA site. Green waste from the CA sites at Lisdeen, Shannon and Ennis is also brought to the CWMF for composting. The material is first processed on site to remove litter and other unsuitable items and to separate branches from fines. Branches are chipped using a wood chipper. The chipped product is mixed with the green waste fines and placed in the site auger mix, which loads the material by conveyor onto one of two aerated static piles. Air is continuously drawn through the piles by means of an air blower to provide the oxygen needed to break down the waste. The temperature of the static pile is monitored weekly to maintain optimum composting conditions. Each pile is turned to ensure even decomposition. After approximately twelve weeks, a mature compost product is formed. This product is mainly used within the site as a soil conditioner. Site compost is tested on a quarterly basis in accordance with W0109-02. The CWMF has accepted approximately 1950 tonnes of green waste for composting since 2006. 400 tonnes of green waste were received during 2012.

7.7 Report on Biodegradable Waste Diversion from Landfill

With the interim closure of the landfill in November 2011, the BMW diversion target is not directly relevant to this facility. The Council continues to promote composting by means of the Green Schools programme. Composters are sold at each of the recycling centres. The CWMF CA site accepts green waste from householders for composting on site.

The waste enforcement section of Clare County Council continues its enforcement of the Food Waste Regulations to ensure that commercial facilities carry out food waste separation at source.

7.8 Report on progress in meeting the requirements of the Landfill Directive

The landfill is closed. The civic amenity site continues to accept recyclable waste, including household hazardous waste for offsite recycling/recovery and garden waste for on site recovery. The site is managed in such a way as to maximise recycling by the public. Customer use of the wet waste container is supervised by site staff to ensure as far as possible that recyclable items are not placed in this container.

7.9 Statement on the achievement of the waste acceptance and treatment obligations of W0109-02.

The landfill is closed. Waste brought to the civic amenity site by domestic customers is monitored by site staff who instruct and advise the public on appropriate disposal/recycling. A leaflet has been printed showing the various streams that can be recycled at the facility. This leaflet is handed out at the weighbridge by site staff.

7.10 Statement of compliance with relevant updates of the Regional Waste Management Plan.

The Regional Waste Management Plan, which is currently under review, was last updated in 2005. The Central Waste Management Facility remains compliant with the Plan. Although the landfill is closed, the site continues to provide recycling and recovery facilities for the general public for nineteen different waste streams including household chemical waste, waste oil and other hazardous waste.

7.11 Updates/amendments to Odour Management Plan.

The Odour Management Plan was last updated in 2010. It will be reviewed and revised during 2013 to reflect changes resulting from the landfill closure.

8. APPENDICES

8.1 Licensed Activities at CWMF

APPENDIX 1A: LICENSED WASTE DISPOSAL ACTIVITIES, IN ACCORDANCE WITH THE THIRD SCHEDULE OF THE WASTE MANAGEMENT ACT, 1996 - 2005

- Class 4. Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons:
This activity is limited to the storage and management of leachate and stormwater in lined lagoons.*
- Class 5. Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.
This activity is limited to the disposal of a maximum of 56,500 tonnes of non-hazardous waste, excluding sewage sludge, per annum into engineered lined cells.*
- Class 6. Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10. of this Schedule:
This activity is limited to leachate re-circulation and the disposal of compost that is produced on site.*
- Class 7. Physico-chemical treatment not referred to elsewhere in this Schedule (including evaporation, drying and calcination) which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10. of this Schedule (including evaporation, drying and calcination):
This activity is limited to possible future leachate treatment at the facility in order to reduce the strength and volume of leachate tankered off-site for treatment.*
- Class 11. Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule.
This activity is limited to the mixing of waste at the Civic Waste Facility prior to being landfilled.*
- Class 12. Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule.
This activity is limited to the mixing or compaction of waste and the reloading of waste tipped for inspection into a container prior to landfilling at the facility or disposal off site.*
- Class 13. Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.
This activity is limited to the storage of waste at the Civic Waste Facility prior to disposal either off site or at the landfill.*

Appendix 1b: Licensed waste recovery activities, in accordance with the Fourth Schedule of the Waste Management Act, 1996 – 2005.

- 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 waste and the recovery of organic wastes including timber, paper and cardboard at the facility.*
- Class 3. Recycling or reclamation of metals and metal compounds:
This activity is limited to the storage of metals including white goods, batteries and scrap metal at the facility pending further recovery off-site.*
- Class 4. Recycling or reclamation of other inorganic materials:
This activity is limited to the storage and recovery of glass and construction and demolition waste at the facility pending the recovery off-site or in the case of construction and demolition waste its use in landfill restoration and engineering works.*
- Class 9. Use of any waste principally as a fuel or other means to generate energy:
This activity is limited to the possible future use of landfill gas as an energy resource to produce electricity and heat.*
- Class 10. The treatment of any waste on land with a consequential benefit for an agricultural activity or ecological system.
This activity is limited to the use of compost as a soil conditioner at the facility for restoration.*
- Class 11. Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule:
This activity is limited to the use of compost and construction and demolition waste as cover material or in restoration, and the use of construction and demolition waste as building material at the facility.*
- 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 waste destined for recovery activities.*

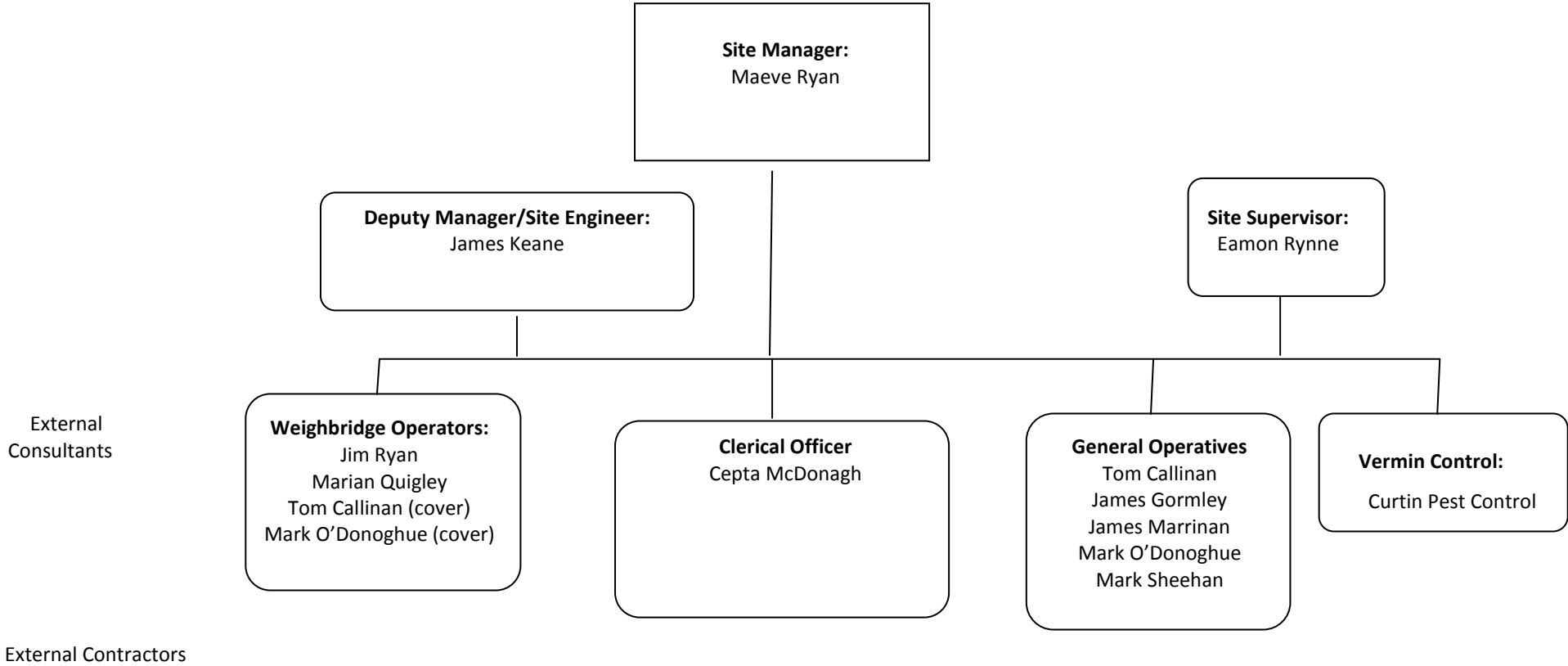
8.2 Water Balance Calculation

Water Mass Balance, 2012

Month	Monthly Rainfall Figures (mm) (Shannon)	Landfill Operations			Area (m ²)				Infiltration (m ³)				Estimated Total Leachate (m ³)	
		Active Cell	Temp Cap	Full Cap	Active Area*	Temp Cap	Full Cap	Concrete	Active Area @ 100% estimated infiltration	Temp Cap @ 100% infiltration	Full Cap @ 10% estimated infiltration	Concrete @ 100% infiltration	Monthly	Cumulative
January	111.8	None	Cell 13	Cells 1 - 12	0	6,000	64,500	2,100	0	222	721	235	1,178	454
February	38.6	None	0	Cells 1 - 13	0	0	70,000	2,100	0	0	270	81	351	805
March	28.3	None	0	Cells 1 - 13	0	0	70,000	2,100	0	0	198	59	258	1,063
April	78.2	None	0	Cells 1 - 13	0	0	70,000	2,100	0	0	547	164	712	1,774
May	38.8	None	0	Cells 1 - 13	0	0	70,000	2,100	0	0	272	81	353	2,127
June	166.9	None	0	Cells 1 - 13	0	0	70,000	2,100	0	0	1,168	350	1,519	3,646
July	112.8	None	0	Cells 1 - 13	0	0	70,000	2,100	0	0	790	237	1,026	4,673
August	89.1	None	0	Cells 1 - 13	0	0	70,000	2,100	0	0	624	187	811	5,484
September	61.9	None	0	Cells 1 - 13	0	0	70,000	2,100	0	0	433	130	563	6,047
October	85.6	None	0	Cells 1 - 13	0	0	70,000	1,900	0	0	599	163	762	6,809
November	121	None	0	Cells 1 - 13	0	0	70,000	1,900	0	0	847	230	1,077	7,886
December	113.7	None	0	Cells 1 - 13	0	0	70,000	1,900	0	0	796	216	1,012	8,898
Maximum estimated leachate volume (m³), assuming maximum rainfall with no PE:														9,621

8.3 Management Structure

Appendix 8.3: Site Management Structure, Central Waste Management Facility



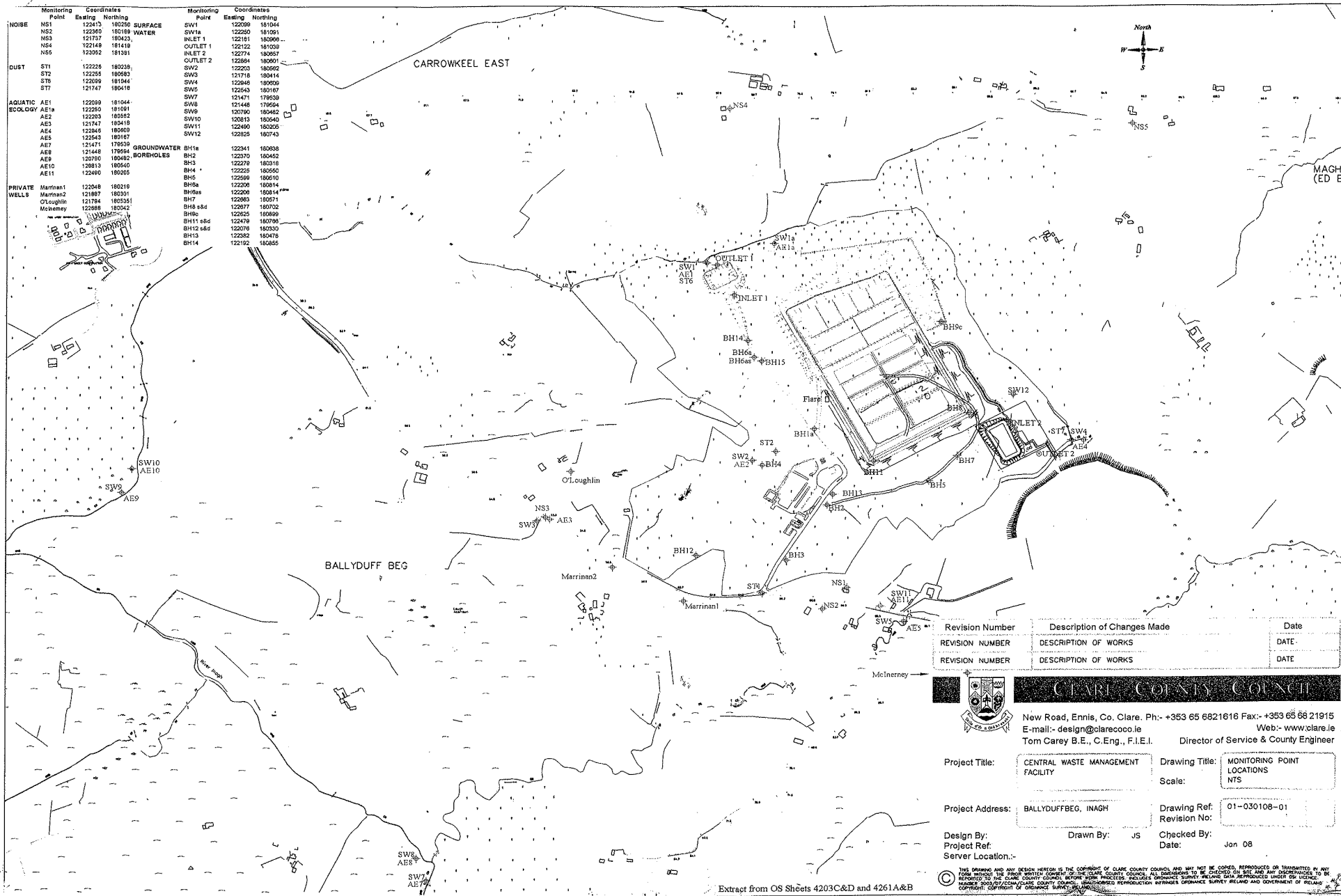
8.4 Summary Details of Incident Reports Issued During 2012

Central Waste Management Facility, Ballyduff Beg

Incident Report Tracking Sheet 2012


Incident Report Ref	Subject	Date
2012/01	Offsite odour	04/01/2012
2012/02	Weighbridge out of action due to lightning strike	05/01/2012
2012/03	Elevated SS levels at outlet 2	09/01/2012
2012/04	Perimeter well gas levels January 2012	09/01/2012
2012/05	Groundwater pH levels, BH6a	18/01/2012
2012/06	Elevated SS levels at outlet 2	27/01/2012
2012/07	Perimeter well gas levels February 2012	09/02/2012
2012/08	Groundwater pH and conductivity levels, BH6a	29/02/2012
2012/09	Perimeter well gas levels March 2012	13/03/2012
2012/10	Perimeter well gas levels April 2012	05/04/2012
2012/11	Waste container fire, CA site	23/04/2012
2012/12	SCADA, cell leachate pumps	30/04/2012
2012/13	Perimeter well gas levels May 2012	11/05/2012
2012/14	Perimeter well gas levels June 2012	12/06/2012
2012/15	Perimeter well gas levels July 2012	06/07/2012
2012/16	Flare carbon monoxide levels	06/07/2012
2012/17	Perimeter well gas levels August 2012	13/08/2012
2012/18	Perimeter well gas levels September 2012	10/09/2012
2012/19	pH meter down on storm 1 outlet	26/09/2012
2012/20	VOC trigger level exceedence	02/10/2012
2012/21	Perimeter well gas levels October 2012	08/10/2012
2012/22	Leachate tank levels	05/11/2012
2012/23	Perimeter well gas levels November 2012	06/11/2012
2012/24	Perimeter well gas levels December 2012	10/12/2012

8.5 Monitoring Point Location Map



Monitoring Point	Easting	Northing	Monitoring Point	Easting	Northing
NOISE NS1	122413	180250	GROUNDWATER BH1a	122341	180638
NS2	122367	180189	BH2	122370	180452
NS3	121737	180423	BH3	122278	180318
NS4	122148	181419	BH4	122225	180560
NS5	123052	181381	BH5	122566	180610
DUST ST1	122225	180339	BH6a	122209	180814
ST2	122255	180983	BH6b	122209	180814
ST3	122039	181044	BH6c	122052	180809
ST7	121747	180418	BH7	122083	180571
AQUATIC ECOLOGY AE1	122089	181044	BH8 s&d	122077	180702
AE1a	122250	181081	BH9	122025	180809
AE2	122203	180352	BH11 s&d	122478	180704
AE3	121747	180418	BH12 s&d	122078	180250
AE4	122846	180869	BH13	122082	180418
AE5	122543	181157	BH14	122192	180855
AE7	121471	178539			
AE9	121448	178564			
AE10	120813	180540			
AE11	123460	180205			
PRIVATE WELLS Murrinan1	122048	180219			
Murrinan2	121867	180201			
O'Loughlin	121784	180251			
McInerney	122888	180242			

Revision Number	Description of Changes Made	Date
REVISION NUMBER	DESCRIPTION OF WORKS	DATE
REVISION NUMBER	DESCRIPTION OF WORKS	DATE


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Project Title:	CENTRAL WASTE MANAGEMENT FACILITY	Drawing Title:	MONITORING POINT LOCATIONS
Project Address:	BALLYDUFFBEG, INAGH	Scale:	NTS
Design By:		Drawing Ref:	01-030108-01
Project Ref:		Revision No:	
Server Location:-		Checked By:	
		Date:	Jun 08

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8.6 List of Site Standard Operating Procedures

Site Procedures List

SOP	Description	Last Revision Date
1	<i>Procedure to be followed in the event of malfunction/non-operation of TOC analyser</i>	02/04/2012
2	<i>Procedure to be followed in the event of activation of the pH alarm</i>	02/04/2012
3	<i>Procedure to be followed in the event of activation of the conductivity alarm</i>	03/04/2012
4	<i>Landfill gas monitoring/training procedure</i>	02/04/2012
5	<i>Exceedence of Trigger Levels for Key Parameters in Groundwater Samples</i>	03/04/2012
6	<i>Communications Programme</i>	03/04/2012
7	<i>Documentation Procedure</i>	03/04/2012
8	<i>Procedure to be followed in the event of landfill gas flare malfunction.</i>	03/04/2012
9	<i>Awareness and Training Procedure</i>	03/04/2012
10	<i>Emergency Response Procedure</i>	03/04/2012
11	<i>Corrective Action Procedure</i>	03/04/2012
12	<i>Complaints Procedure</i>	04/04/2012
13	<i>Waste Acceptance Procedure (relevant to operational landfill only)</i>	29/09/2011
14	<i>Procedure for handling hazardous domestic waste</i>	04/04/2012
15	<i>Handling Procedure for Difficult Wastes and Non-Hazardous Industrial Solid Wastes (relevant to operational landfill only)</i>	02/06/2011
16	<i>Odour Patrol Procedure</i>	05/11/2010
17	<i>Surface Water Visual Inspection Procedure.</i>	04/04/2012
18	<i>Administrative Procedure</i>	04/04/2012
19	<i>Procedure for Handling, storage and deposition of wood ash (relevant to operational landfill only)</i>	02/06/2011
20	<i>Procedure for Leachate Handling</i>	03/04/2012
21	<i>Procedure for Removal of Recyclable Waste from the Civic Amenity Site</i>	03/04/2012
22	<i>Procedure for Application of Landfill Cover (relevant to operational landfill only)</i>	18/01/2011
23	<i>Accident Prevention Policy</i>	03/04/2012
24	<i>Procedure for preparation of BMW returns under condition 3.16 of W0109-02 (relevant to operational landfill only)</i>	03/10/2011

8.7 Landfill Gas Survey Returns for 2012

A survey of landfill sites to determine the quantity of methane flared and or recovered in utilisation plants for 2012

Please choose from the drop down menu the license number for your site	<input type="text" value="W0109"/>
Please choose from the drop down menu the name of the landfill site	<input type="text" value="Ballyduff Beg"/>
Please enter the number of flares operational at your site in 2012	<input type="text" value="1"/>
Please enter the number of engines operational at your site in 2012	<input type="text" value="0"/>
Total methane flared	<input type="text" value="1,580,804"/> kg/year
Total methane utilised in engines	<input type="text" value="0"/> kg/year

Please note that the closing date for receipt of completed surveys is 31/03/2013

Introduction

The Office of Climate Licensing and Resource Use (OCLR) of the Environmental Protection Agency acts as the inventory agency in Ireland with responsibility for compiling and reporting national greenhouse gas inventories to the European Commission and the United Nations Framework Convention on Climate Change. In addition to meeting international commitments Ireland's national greenhouse gas inventory informs national agencies and Government departments as they face the challenge to curb emissions and meet Ireland's targets under the Kyoto Protocol. The national inventory also informs data suppliers, making them aware of the importance of their contributions to the inventory process and a means of identifying areas where input data may be improved.

It is on this basis that the Environmental Protection Agency is asking landfill operators to partake in this survey so that the most up to date information on methane flaring and recovery in utilisation plants at landfill sites is used in calculating the contribution of the waste sector to national greenhouse gas emissions

The Environmental Protection Agency wishes to thank you for partaking in this survey. If you have any questions about the survey and how to complete it please view the "Help sheet" worksheet. If however, your query is not answered by viewing the "Help sheet" worksheet please contact:

LFGProject@epa.ie

Once completed please send the completed file as an attachment clearly stating the name and or license number of the landfill site (e.g. W000 Xanadu landfill_2012) to:

LFGProject@epa.ie

Flare No. 1

Flare type ?	AFS HT750	If "other" enter flare description here	
Is the flare an open or enclosed flare ?	Enclosed	Rated flare capacity ?	750 m ³ /hr
Month /year comissioned ?	September	2003	
Month decomissioned if decomissioned in 2012 ?	Select		
What is the function of the flare ?	Extraction from capped area	If "other" enter flare function here	

Monthly	Method M/C/E	Runtime days/month	Runtime hrs/day	Downtime hrs	Total runtime hrs/month	Average Inlet Pressure (mbg)	Average Flow Rate (m ³ /hr)	Average CH ₄ %v/v	Average CO ₂ %v/v	Average O ₂ %v/v	Combustion efficiency (%)	Total CH ₄ m ³	Total CH ₄ kgs
January	M	31	24.0	3.0	741	-11	702	40.70	26.10	2.10	99.9	211,502	144,446
February	M	28	24.0	0.3	672	-10	730	43.20	26.30	2.20	99.9	211,615	144,668
March	M	31	24.0	2.0	742	-10	725	40.80	24.90	2.40	99.9	219,264	149,897
April	M	30	24.0	6.0	714	-8	723	39.90	23.90	2.50	99.9	205,767	140,950
May	M	31	24.0	0.3	744	-11	699	39.80	24.00	2.50	99.9	206,692	141,161
June	M	30	24.0	6.0	714	-11	672	40.30	24.00	3.30	99.9	193,169	131,926
July	M	31	24.0	0.3	744	-10	670	39.70	20.40	3.00	99.9	197,619	135,099
August	M	31	24.0	0.5	744	-16	670	40.30	22.60	2.70	99.9	200,552	136,284
September	M	30	24.0	0.0	720	-19	671	38.60	25.00	3.00	99.9	186,298	126,217
October	M	31	24.0	0.3	744	-19	653	36.00	22.30	3.10	99.9	174,654	118,329
November	M	31	24.0	2.0	742	-18	649	34.00	21.00	1.00	99.9	163,566	110,928
December	M	31	24.0	0.6	743	-22	617	32.60	20.50	1.80	99.9	149,379	100,900
Total					8,763							2,320,078	1,580,804

Please note: Only fill the "Yearly" table if data is not available or cannot be calculated nor estimated on a monthly basis

Yearly	Method M/C/E	Runtime days/year	Runtime hrs/day	Downtime hrs	Total runtime hrs/year	Average Inlet Pressure (mbg)	Average Flow Rate m ³ /hr	Average CH ₄ %v/v	Average CO ₂ %v/v	Average O ₂ %v/v	Combustion efficiency (%)	Total CH ₄ m ³	Total CH ₄ kgs
2012					0						98.0	0	0

8.8 PRTR Returns for 2012



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	Clare County Council
Facility Name	Central Waste Management Facility
PRTR Identification Number	W0109
Licence Number	W0109-02

Waste or IPPC Classes of Activity

No.	class_name
3.5	Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.
3.11	Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule.
3.12	Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule.
3.13	Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.
3.2	Land treatment, including biodegradation of liquid or sludge discards in soils.
3.4	Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons.
3.6	Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10. of this Schedule.
3.7	#####
4.10	The treatment of any waste on land with a consequential benefit for an agricultural activity or ecological system.
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.
4.4	Recycling or reclamation of other inorganic materials.
4.9	Use of any waste principally as a fuel or other means to generate energy.
Address 1	Ballyduff Beg
Address 2	Inagh
Address 3	Co. Clare
Address 4	
Country	Clare
Country	Ireland
Coordinates of Location	-9.14882 52.5393
River Basin District	IEGBNISH
NACE Code	3821
Main Economic Activity	Treatment and disposal of non-hazardous waste
AER Returns Contact Name	Maeve Ryan
AER Returns Contact Email Address	mryan@clarecoco.ie
AER Returns Contact Position	Facility Manager
AER Returns Contact Telephone Number	065 6836960
AER Returns Contact Mobile Phone Number	087 2899248
AER Returns Contact Fax Number	065 6836959
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	7
User Feedback/Comments	
Web Address	

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
5(d)	Landfills
5(c)	Installations for the disposal of non-hazardous waste
50.1	General

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

Is it applicable?	No
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) ?	No
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This question is only applicable if you are an IPPC or Quarry site

4.1 RELEASES TO AIR

[Link to previous years emissions data](#)

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR						Please enter all quantities in this section in KGs			
No. Annex II	POLLUTANT Name	M/C/E	METHOD		Emission Point 1	QUANTITY			
			Method Code	Designation or Description		T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
01	Methane (CH4)	C	OTH	Flue gas analyser, online	0.0	20831.0	0.0	20831.0	
03	Carbon dioxide (CO2)	M	OTH	Flue gas analyser, online	5998787.0	5998787.0	0.0	0.0	
02	Carbon monoxide (CO)	M	EN 15058:2004		0.007226875	0.007226875	0.0	0.0	
08	Nitrogen oxides (NOx/NO2)	M	OTH	Chemiluminescence	0.03750515	0.03750515	0.0	0.0	
11	Sulphur oxides (SOx/SO2)	M	OTH	Horiba PG250	0.568825	0.568825	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			
No. Annex II	POLLUTANT Name	M/C/E	METHOD		Emission Point 1	QUANTITY			
			Method Code	Designation or Description		T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
60	Vinyl chloride	M	OTH	EN12619	0.00267068	0.00267068	0.0	0.0	
35	Dichloromethane (DCM)	M	OTH	EN12619	0.00267068	0.00267068	0.0	0.0	
52	Tetrachloroethylene (PER)	M	OTH	EN12619	0.00267068	0.00267068	0.0	0.0	
84	Fluorine and inorganic compounds (as HF)	M	OTH	EN15713	0.00083552	0.00083552	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 AIR						Please enter all quantities in this section in KGs			
Pollutant No.	POLLUTANT Name	M/C/E	METHOD		Emission Point 1	QUANTITY			
			Method Code	Designation or Description		T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
230	TA Luft organic substances class 1	M	EN 13649:2001		0.0019396	0.0019396	0.0	0.0	
319	Inorganic acids	M	OTH	Impinger sampling in accordance with EN1911, for HCl.	0.00047744	0.00047744	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:

Central Waste Management Facility

Please enter summary data on the quantities of methane flared and / or utilised

T (Total) kg/Year	M/C/E	METHOD		Facility Total Capacity m3 per hour	
		Method Code	Designation or Description		
Total estimated methane generation (as per site model)	1601635.0	E	OTH	Estimated using Gassim lite	N/A
Methane flared	1580804.0	M	OTH	Flue gas analyser, online, im	0.0 (Total Flaring Capacity)
Methane utilised in engine/s	0.0				0.0 (Total Utilising Capacity)
Net methane emission (as reported in Section A above)	20831.0	C	OTH	Total generated minus meth	N/A

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

| PRTR# : W0109 | Facility Name : Central Waste Management Facility | Filename : W0109_2012.xls | Return Year : 2012 |

20/03/2013 10:34

Please enter all quantities on this sheet in Tonnes

30

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 Haz Waste : Name and Licence/Permit No of Recover/Disposer	Non	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	15 01 05	No	3.0	composite packaging	R3	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01		Cree,Kilrush,County Clare,..Ireland	Enva,W0184-01	Clonminan Industrial Estate,Portlaoise,County Laoise,..Ireland
Within the Country	20 01 01	No	66.0	paper and cardboard	R3	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01		Cree,Kilrush,County Clare,..Ireland		
Within the Country	15 01 01	No	23.52	paper and cardboard packaging	R3	M	Weighed	Offsite in Ireland	Mr Binman,W0061-03		Luddenmore,Grange,Kilmallock,County Limerick,Ireland		
Within the Country	15 01 07	No	32.56	glass packaging	R5	M	Weighed	Offsite in Ireland	Mr Binman,W0061-03		Luddenmore,Grange,Kilmallock,County Limerick,Ireland		
Within the Country	20 01 02	No	18.04	glass	R5	M	Weighed	Offsite in Ireland	Tullagower Quarries Ltd,004/08/WPT/CL		Tullagower,Kilrush,County Clare,..Ireland		
Within the Country	15 01 04	No	27.8	metallic packaging, steel cans	R4	M	Weighed	Offsite in Ireland	Clare Waste,WFP/CE/08/0002/01		Raheen,Tuamgraney,County Clare,..Ireland		
Within the Country	15 01 04	No	1.0	metallic packaging, aluminium cans	R4	M	Weighed	Offsite in Ireland	Mr Binman,W0061-03		Luddenmore,Grange,Kilmallock,County Limerick,Ireland		
Within the Country	20 01 40	No	100.76	metals	R4	M	Weighed	Offsite in Ireland	Hegarty Metals, WFP/LK/2008/07C		Ballysimon Road,Limerick,..Ireland		
Within the Country	15 01 02	No	25.316	plastic packaging	R3	M	Weighed	Offsite in Ireland	Mr Binman,W0061-03		Luddenmore,Grange,Kilmallock,County Limerick,Ireland		
Within the Country	20 01 39	No	50.186	plastics	R3	M	Weighed	Offsite in Ireland	Mr Binman,W0061-03		Luddenmore,Grange,Kilmallock,County Limerick,Ireland		
Within the Country	19 07 03	No	6962.32	landfill leachate other than those mentioned in 19 07 02	D8	M	Weighed	Offsite in Ireland	Lisdoonvarna Wastewater Treatment plant ,D0077-01		Knocknagulla,Lisdoonvarna, County Clare,0,Ireland		
Within the Country	19 07 03	No	2913.58	landfill leachate other than those mentioned in 19 07 02	D8	M	Weighed	Offsite in Ireland	Sixmilebridge WWTP,D0076-01		Sixmilebridge ,County Clare,..Ireland		
Within the Country	20 01 11	No	7.98	textiles	R3	M	Weighed	Offsite in Ireland	Alltex Recyclers Limited 1 Ballycreagh Road Cloughmills Ballymena BT44 9LB. Licence WMEX 04/12,WMEX 04/12		1 Ballycreagh Rd ,Cloughmills,Ballymena,BT44 9LB,Ireland		
Within the Country	20 01 38	No	156.53	wood other than that mentioned in 20 01 37	R3	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01		Cree,Kilrush,County Clare,..Ireland		
Within the Country	16 06 01	Yes	0.71	lead batteries	R4	M	Weighed	Offsite in Ireland	Enva,W0184-01		Clonminan Industrial Estate,Portlaoise,County Laoise,..Ireland	Campine Recycling,MLAV/05-173/GVDA,Beerse,..BelgiumBelgium
Within the Country	16 06 04	No	1.56	alkaline batteries (except 16 06 03)	R4	M	Weighed	Offsite in Ireland	Electrical Waste Management,WFP DS-09001201		Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,County Dublin,Ireland		
Within the Country	13 02 08	Yes	5.31	other engine, gear and lubricating oils	R9	M	Weighed	Offsite in Ireland	Enva,W0184-01		Clonminan Industrial Estate,Portlaoise,County Laoise,..Ireland	Enva,W0184-01	Clonminan Industrial Estate,Portlaoise,County Laoise,..Ireland
Within the Country	20 01 25	No	0.69	edible oil and fat	R9	M	Weighed	Offsite in Ireland	Agripure,.		Rathmooney,Lusk,County Dublin,..Ireland		
Within the Country	20 01 28	No	20.744	paint, inks, adhesives and resins other than those mentioned in 20 01 27	R1	M	Weighed	Offsite in Ireland	Enva,W0184-01		Clonminan Industrial Estate,Portlaoise,County Laoise,..Ireland		
Within the Country	20 01 23	Yes	13.8	discarded equipment containing chlorofluorocarbons	R4	M	Weighed	Offsite in Ireland	Electrical Waste Management,WFP DS-09001201		Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,County Dublin,Ireland	European Metal Recycling Ltd,..Bentley Road South,Darlaston,WS10 8LW,West Midlands,United KingdomUnited Kingdom
Within the Country	20 01 21	Yes	0.22	fluorescent tubes and other mercury-containing waste	R4	M	Weighed	Offsite in Ireland	KMK Metals,W0113/03		Dangan Road,Tullamore,County Offaly,..Ireland	Meath,IrelandIreland
Within the Country	20 01 35	Yes	28.78	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and and 20 01 23 containing hazardous components	R4	M	Weighed	Offsite in Ireland	Electrical Waste Management,WFP DS-09001201		Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,County Dublin,Ireland	The Recycling Village,..Unit 21,Duleek Business Park,Commons,Duleek Meath,IrelandIreland
Within the Country	20 01 36	No	52.755	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	R4	M	Weighed	Offsite in Ireland	Electrical Waste Management,WFP DS-09001201		Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,County Dublin,Ireland		
Within the Country	20 03 01	No	1097.28	mixed municipal waste	D13	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01		Cree,Kilrush,County Clare,..Ireland		
Within the Country	20 03 07	No	22.9	bulky waste	R4	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01		Cree,Kilrush,County Clare,..Ireland		
Within the Country	16 06 01	Yes	1.04	lead batteries	R4	M	Weighed	Offsite in Ireland	KMK Metals,W0113/03		Dangan Road,Tullamore,County Offaly,..Ireland	HJ Enthoven (info provided by KMK Max,..United KingdomUnited Kingdom
Within the Country	16 01 07	Yes	0.71	oil filters	R9	M	Weighed	Offsite in Ireland	Enva,W0184-01		Clonminan Industrial Estate,Portlaoise,County Laoise,..Ireland	Enva,W0184-01	Clonminan Industrial Estate,Portlaoise,County Laoise,..Ireland
Within the Country	17 01 07	No	37.3	mixture of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	R5	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01		Cree,Kilrush,County Clare,..Ireland		
Within the Country	15 01 01	No	26.5	paper and cardboard packaging	R3	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01		Cree,Kilrush,County Clare,..Ireland		