



Comhairle Contae an Chláir  
Clare County Council

**Comhairle Contae an Chláir**

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**Clare County Council**

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

► **Annual Environmental Report**

**2013**

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

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## **2. INTRODUCTION**

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### **2.1 Background**

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 30<sup>th</sup> September 2002 and ceased on an interim basis on the 26<sup>th</sup> 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 1<sup>st</sup> to December 31<sup>st</sup> 2013.

### **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 2,350t of domestic green waste from landfill between 2006 and the end of 2013. This facility remains in operation.

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## **3. MATERIALS/WASTE TRANSPORTED ON/OFF SITE**

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### **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 (995 tonnes in total).

### **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 995 tonnes of

residual waste was accepted from householders in 2013, including bulky waste items and environmental cleanup material.

### 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 13<sup>th</sup> 2005. All WEEE is stored on site prior to collection by the nominated contractor.

Green waste composting commenced in January 2006, using aerated static pile technique 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. Approximately 2,400 tonnes of green waste has been recovered to date. The compost product is used mainly as a soil conditioner within the site.

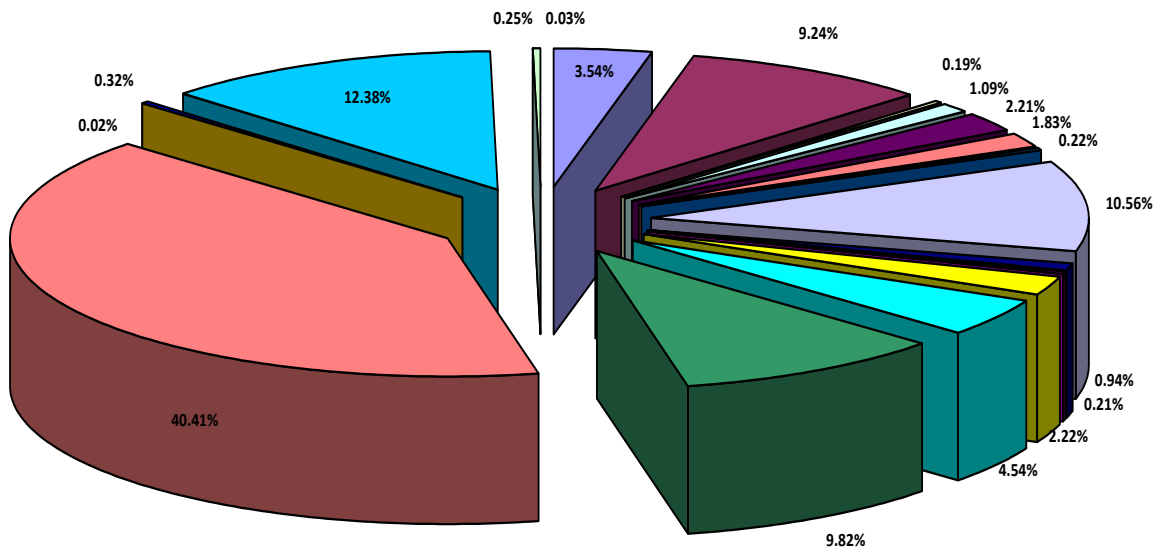
Hard plastics have been accepted at the facility for recovery since mid 2008.

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 was no further use for this material within the site and this waste stream is no longer accepted.

**TABLE 3.1: QUANTITY (TONNES) OF MATERIALS RECYCLED/RECOVERED IN 2013**

Material	Quantity	Material	Quantity	Material	Quantity
Glass Bottles	35	Textiles	9.3	Waste mineral oil	3.2
WEEE	91.4	Batteries	2.1	Timber	123
Food cans	11	Plastic bottles	22	Fluorescent tubes	0.3
Beverage cans	1.8	Hard plastics	45	Oil filters	2.5
Sheet Glass	18	Scrap metal	97	Paint, Varnish	22
Tetra Pak	2.2	Green waste	400	<b>Total</b>	<b>991</b>
Paper/ cardboard	105	Waste cooking oil	0.2		

**Figure 3.1: Quantity of Household Material Recycled/Recovered during 2013  
(percentage by weight)**



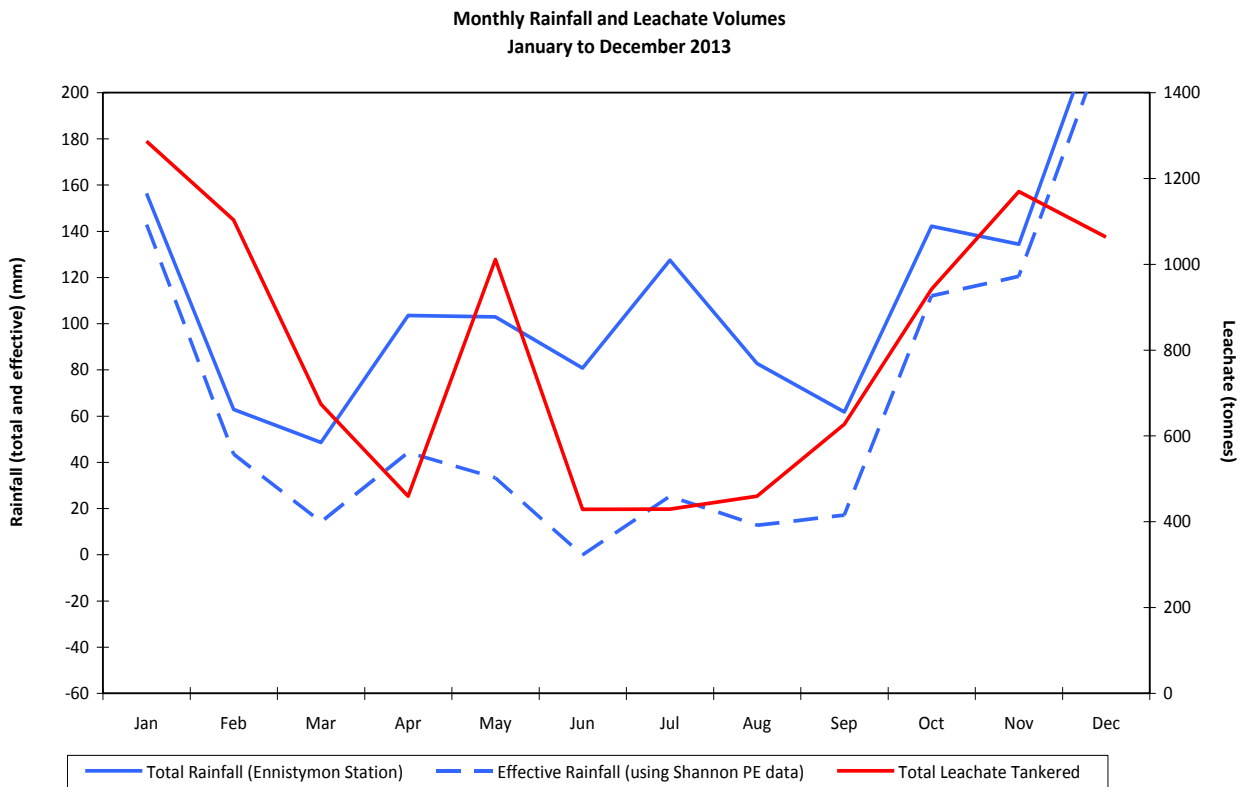
■ Glass Bottles	■ WEEE	■ Drink cans	■ Food cans	■ Paint, Varnish	■ Sheet Glass	■ Tetra Pak
■ Paper/ cardboard	■ Textiles	■ Batteries	■ Plastic bottles	■ Hard plastics	■ Scrap metal	■ Green waste
■ Waste cooking oil	■ Waste mineral oil	■ Timber	■ Fluorescent tubes	■ Oil filters		

### 3.4 Leachate Quantities/Water Mass Balance.

Leachate is pumped from a collection sump at the base of each landfill cell to a storage tank (tank 2) located in 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 cell sumps. Potentially contaminated stormwater from designated areas within the civic amenity site is discharged to a second leachate storage tank (tank 1). Leachate is pumped from these tanks and transported to wastewater treatment plants in Lisdoonvarna and Sixmilebridge. The leachate removal contractor was Lack Plant Hire (permit number WCP/LK/115/05c) to September 2013 and Martin Ryan Transport from September 2013 to year end.

A total of 9,652 tonnes of leachate were transported off site during 2013. The quantities moved each month are graphed against monthly rainfall in figure 3.2 below. Estimated effective rainfall is also shown on the graph (calculated using Met Eireann rainfall data for Ennistymon and PE data for Shannon). 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: 2013 Rainfall and Leachate Levels:**



The volume of leachate tankered each month provides a rough estimate of volume of leachate generated. In 2013, as the graph shows, heaviest rainfall occurred in January and December. Volumes tankered were reduced slightly in December due in part to the holiday season and also to restrictions imposed by the WWTP's.

Annual leachate and rainfall volumes from 2003 to 2013 are shown in fig. 3.3 and 3.4. The graphs show 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 and also 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 by diversion of clean runoff away from the vehicle storage area and by reducing its size. Further modifications are proposed for 2014.

Fig. 3.3: Annual Leachate Tonnages  
(2003 to 2013)

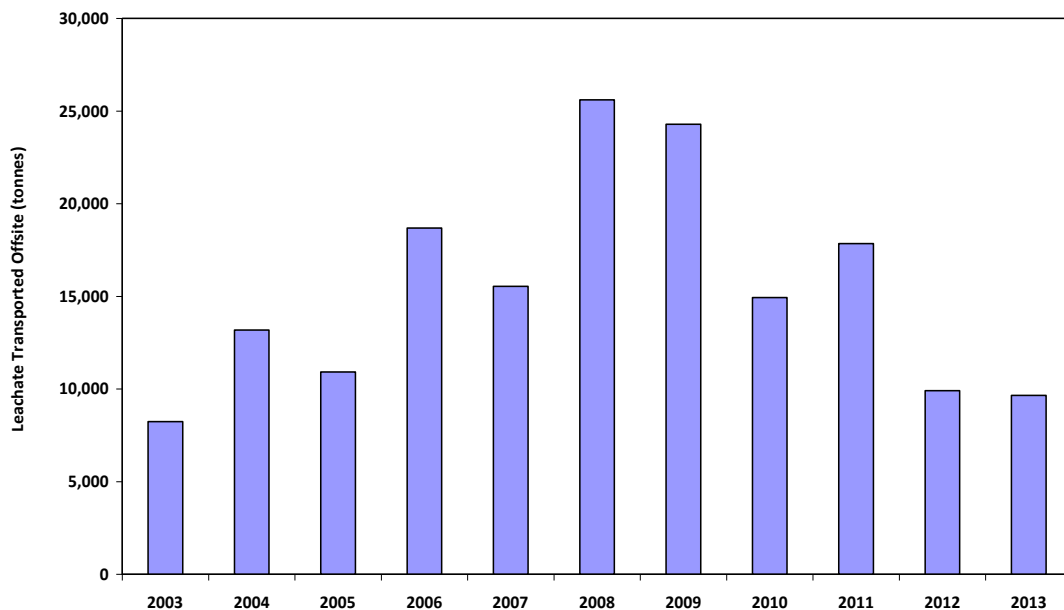
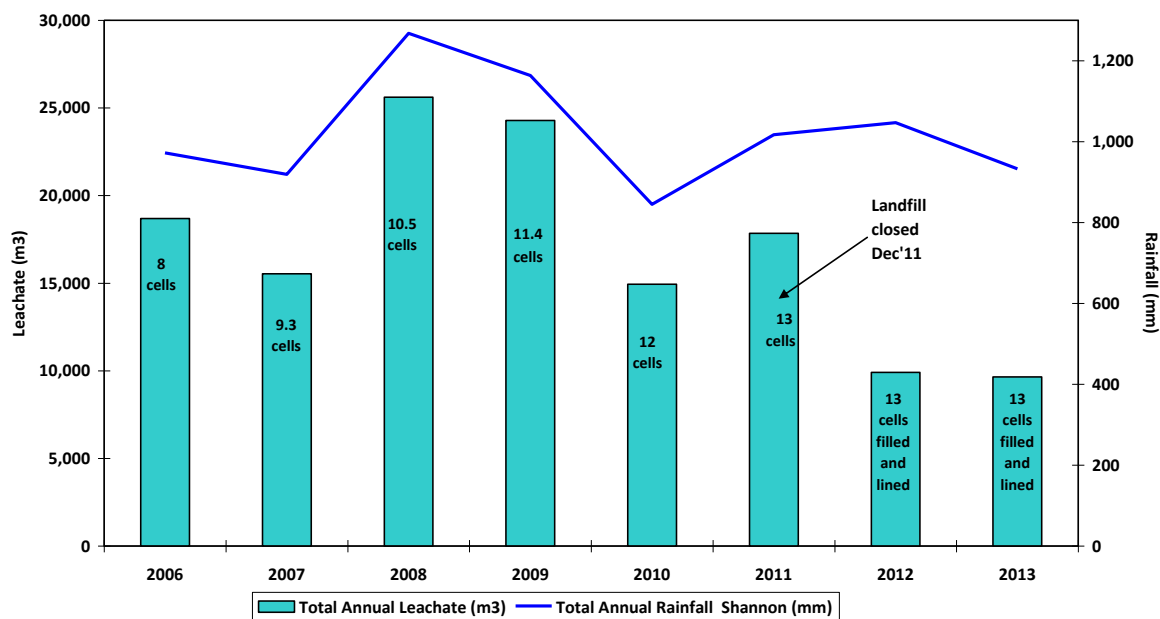


Figure 3.4: Summary of Annual Leachate and Rainfall Volumes, 2006 to 2013  
(No. of cells filled or part-filled by end of each year is also shown on graph)



A monthly water balance calculation for the site is attached in Appendix 8.2. This calculation resulted in a theoretical leachate volume of 9,010m<sup>3</sup> (tonnes) for 2013 based on a total rainfall figure of 1,343m<sup>3</sup> from Ennistymon Rainfall Station (effective rainfall estimated at 788mm using Shannon PE data). The actual leachate volume tankered offsite in 2013 was 9,652 tonnes, which is very close to the estimate. The water balance assumes an infiltration rate of 10% over capped areas.

### 3.5 Landfill Gas Management, January to December 2013

During 2013, a total of 922,410kg of methane was flared in the site enclosed flare 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). 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 fluctuates, decreasing over time as the waste biodegrades. Extraction must be regulated so as to optimise methane concentration and minimise oxygen levels 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.

Flare downtime totalled 15 hours during the year, mainly due to essential servicing/maintenance. The service company used is Irish Biotech Systems Ltd (IBSL).

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 for plant/equipment used during 2013 are outlined below:

**TABLE 2.2: RECORDED DIESEL CONSUMPTION IN 2013**

<b>Plant/Machinery</b>	<b>Unit</b>	<b>Quantity</b>
Generator + pumps	litres	180
JCB	litres	1,027
Tractors	litres	1,903
CCC Site Vehicle (Toyota Pick-up)	litres	772
Total amount of Diesel Consumed:	litres	3,882

Diesel consumption figures are based on Council machinery yard records.

Electricity consumption was **130,364** kWh for the reporting period January to December 2013.

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## 4. SUMMARY OF MONITORING AND EMISSIONS

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### 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 2013. 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 SNC Lavelin. 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) subcontracted to 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 up to September 2013, when the waste body monitoring frequency reverted to monthly, as specified in the waste licence. Results were submitted to the Agency in monthly reports via EDEN. 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, including pumping trials, monitoring 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 2007 and again in 2010. Results showed no similarity 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)	23 <sup>rd</sup> May 2013	24 <sup>th</sup> September 2013	Emission Limit <sup>1</sup>
Nitrogen Oxides (NO <sub>x</sub> ) as NO <sub>2</sub> (mg/Nm <sup>3</sup> )	45.2	61.15	150 mg/m <sup>3</sup> for Flare Stacks
Carbon Monoxide (CO) (mg/Nm <sup>3</sup> )	17.97	13.92	50 mg/m <sup>3</sup> for Flare Stacks
Sulphur Dioxide (SO <sub>2</sub> ) (mg/Nm <sup>3</sup> )	114.23	33.86	-
Temperature (°K)	1,314	1,314	>1,273
Volumetric Flow Rate (Nm <sup>3</sup> /hr)	423.6	458	3,000
Vinyl Chloride (mg/Nm <sup>3</sup> )	<0.82	-	-
Acetonitrile (mg/Nm <sup>3</sup> )	<0.82	-	-
Dichloromethane (mg/Nm <sup>3</sup> )	<0.82	-	-
Tetrachloroethylene (mg/Nm <sup>3</sup> )		-	-
TA Luft Class I (mg/Nm <sup>3</sup> )	1.84	-	20 mg/m <sup>3</sup> (at mass flows >0.1kg/hr)
TA Luft Class II (mg/Nm <sup>3</sup> )		-	100 mg/m <sup>3</sup> (at mass flows >2 kg/hr)
TA Luft Class III (mg/Nm <sup>3</sup> )		-	150 mg/m <sup>3</sup> (at mass flows >3 kg/hr)
HCl (mg/Nm <sup>3</sup> )	0.70	-	50 mg/m <sup>3</sup> (at mass flows >0.3kg/hr)
HF (mg/Nm <sup>3</sup> )	2.16	-	5 mg/m <sup>3</sup> (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 <sup>2</sup> /day)
	2 <sup>nd</sup> June – 23 <sup>rd</sup> July 2013	6 <sup>th</sup> August – 3 <sup>rd</sup> September 2013	3 <sup>rd</sup> September – 9 <sup>th</sup> October 2013	
ST1	31.7	19.7	68.5	350
ST2	19.6	27.2	90.3	350
ST6	15.5	52.5	58.0	350
ST7	6.8	16.0	31.2	350

As can be seen from table 4.3, all results were below the licence limit of 350mg/m<sup>2</sup>/day.

PM<sub>10</sub> 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: PM<sub>10</sub> MONITORING RESULTS.**

Monitoring Location:	ST1	ST2	ST3	ST4
Monitoring period:	24 <sup>th</sup> September 2013			
24 hour average PM <sub>10</sub> , ug/m <sup>3</sup>	5	3	2	8

All results were within the licence limit of 50ug/m<sup>3</sup>

#### 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 quite similar to previous survey results. Noise levels at locations NS1, NS5, NS6 and NS4 (the September survey) were in compliance with the 55dB(A) daytime limit. Noise levels at NS2 and NS3 were above licence limits. Results at NS4 were also marginally above licence limits in May 2013. The elevated noise levels at NS2, NS3 and NS4 were attributed to passing road traffic, as is reflected by the elevated L<sub>A10</sub> 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	16 <sup>th</sup> May 2013			11 <sup>th</sup> September 2013		
	L <sub>Aeq</sub> , 30min dB(A)	L <sub>A90</sub> , 30 min dB(A)	L <sub>A10</sub> , 30 min dB(A)	L <sub>Aeq</sub> , 30min dB(A)	L <sub>A90</sub> , 30 min dB(A)	L <sub>A10</sub> , 30 min dB(A)
NS1	54.3	44.3	56.8	54.8	44.1	57.1
NS2	59.3	51.2	66.1	60.1	51.5	66.7
NS3	57.2	41.3	62.1	58.4	51.3	66.1
NS4	55.1	42.7	58.6	54.6	43.7	56.9
NS5	50.9	49.5	53.7	50.5	48.1	53.6
NS6	50.6	48.1	55.3	51.3	48.6	54.2

#### 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). Monthly surface water monitoring was carried out 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.

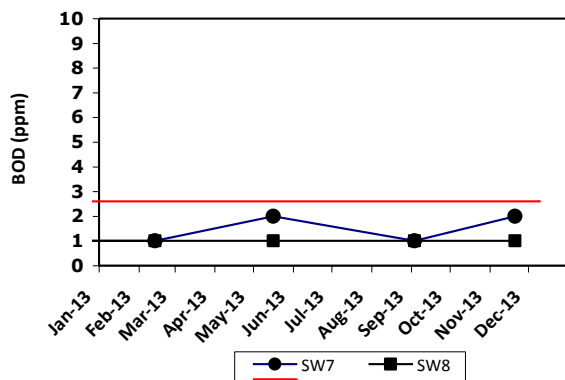
Results for key parameters (ammonia, BOD and total suspended solids) are discussed in this report. Detailed results of all surface water monitoring carried out during the year have previously been submitted to the Agency in separate reports for each quarter.

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).

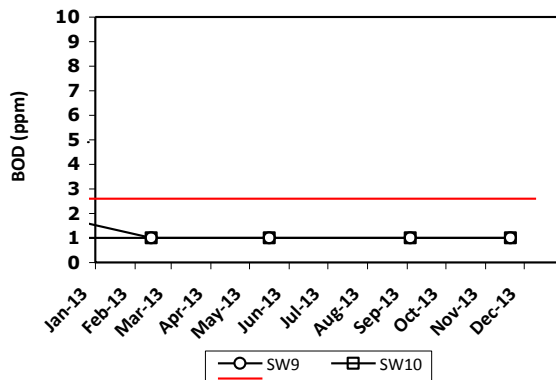
#### 4.6.1.1. Surface Water BOD:

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 of 1ppm.

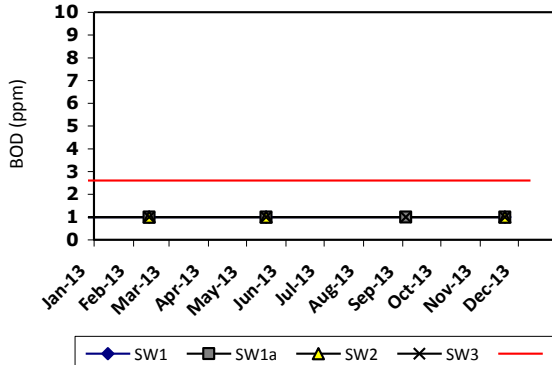
**Figure 4.1: Surface Water BOD Levels Inagh River**



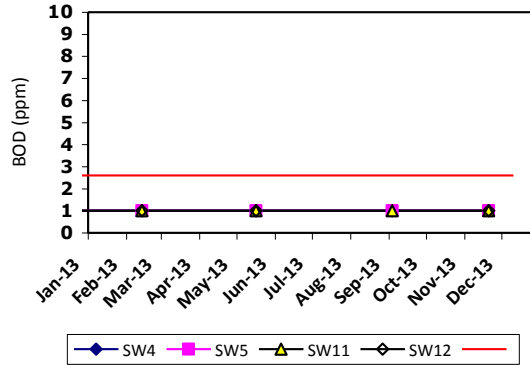
**Figure 4.2: Surface Water BOD Levels Inagh River**



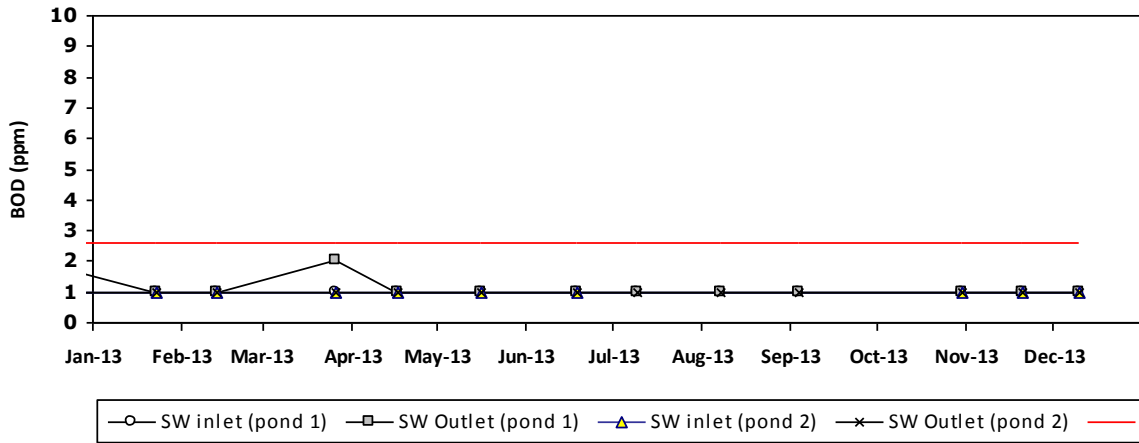
**Figure 4.3: Surface Water BOD Levels Stream 1**



**Figure 4.4: Surface Water BOD Levels Streams 2/3**



**Figure 4.5: SW Inlet and Outlet BOD Levels**

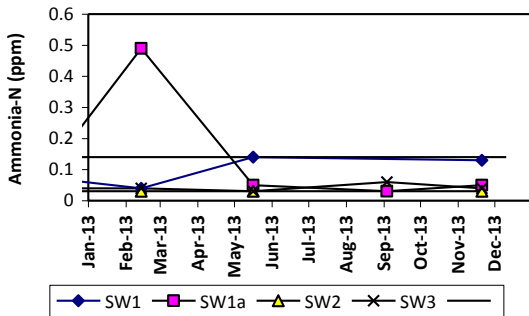


As can be seen from the graphs, surface water BOD levels for 2013 were below the EQS in all samples. 95% of samples were below the BOD method detection limit of 1ppm.

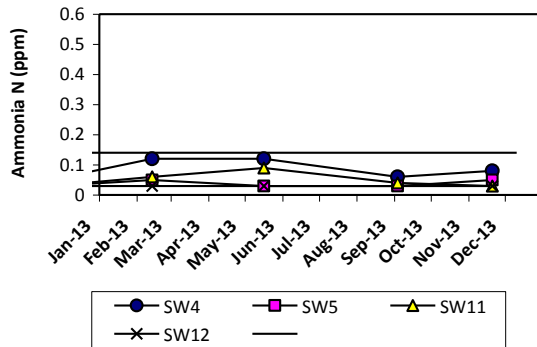
**4.6.1.2 Surface Water Ammonia:**

Surface water ammonia levels in Streams 1, 2 and 3 and in the Inagh river are graphed in figures 4.6 to 4.9.

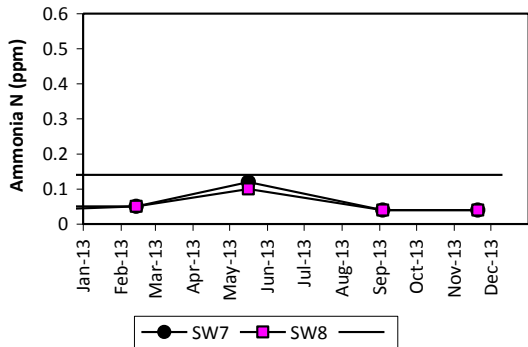
**Figure 4.6: Surface Water Ammonia Levels Stream 1**



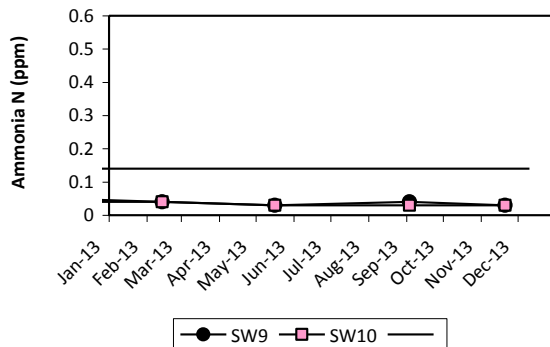
**Figure 4.7: Surface Water Ammonia Levels Streams 2/3**



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

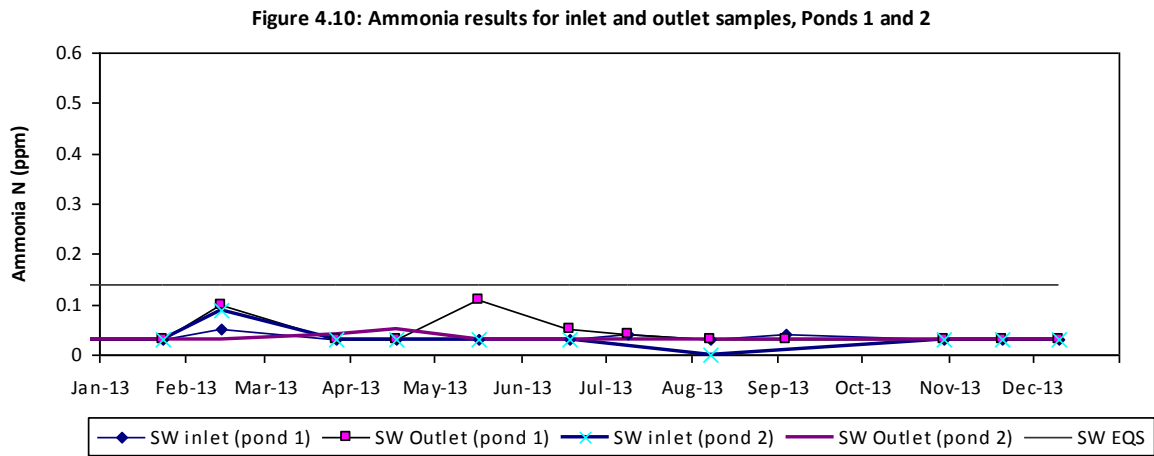


**Figure 4.9: Surface Water Ammonia Levels Inagh River, SW9 and SW10**



With the exception of one ammonia result of 0.49ppm in February 2013 for SW1a (upstream sample), all results were below the surface water ammonia EQS of 0.14ppm (95%ile).

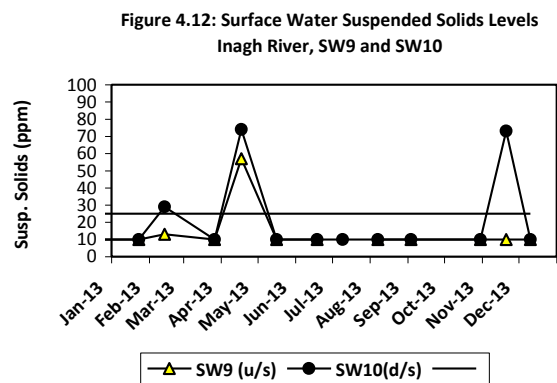
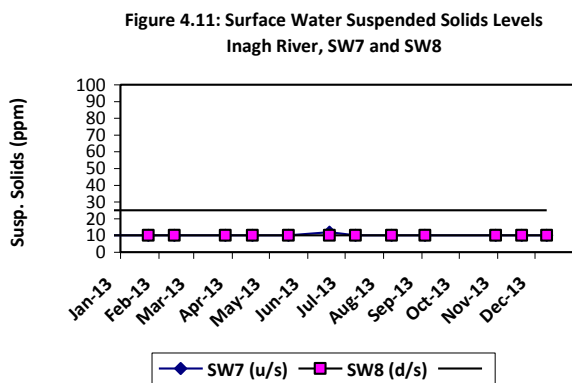
Ammonia levels in stormwater pond inlet and outlet samples are graphed below in figure 4.10:



As can be seen from the graph, all ammonia results for stormwater pond inlet and outlet samples remained below the EQS for good status waters during the year.

#### 4.6.1.3 Surface Water Suspended Solids.

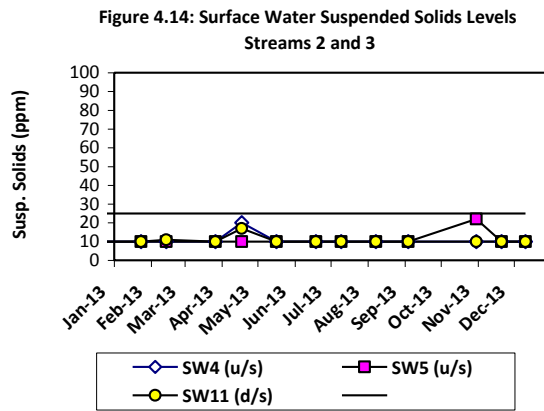
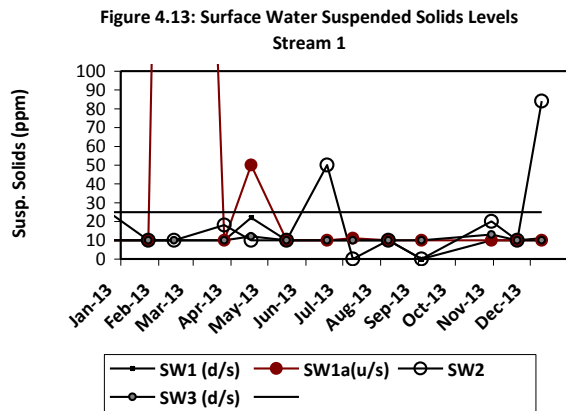
Surface water monitoring locations were visually inspected each week for turbidity, gross solids, colour and surface film. Monthly samples were analysed for suspended solids levels. Results for 2013 are graphed below in figures 4.11 to 4.15. The 25ppm suspended solids limit for Salmonid waters is included in figures 4.11 to 4.14 for comparative purposes only. The site boundary streams and the Inagh river are not designated salmonid waters. 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 for SW7 and SW8. Results for SW9 and SW10 were above the 25ppm limit in April 2013. SW10 results were elevated again in November 2013. This sample point is downstream of the confluence with stream 1. Results upstream on stream 1 (SW3) were not elevated and site stormwater pond results were also not elevated, indicating that the elevated suspended solids levels at SW10

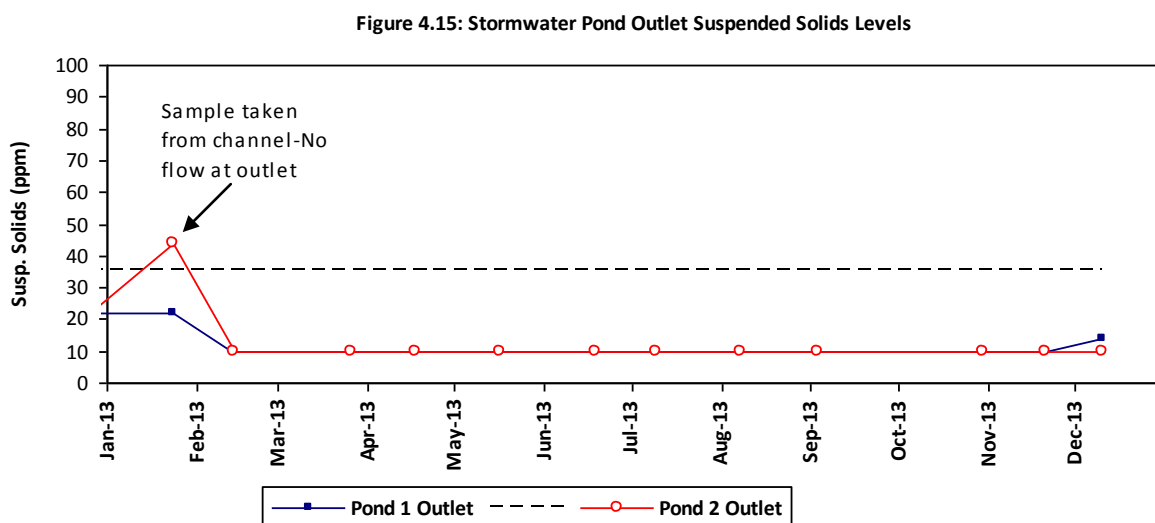
were not related to site activities. The consultant's quarterly report for the period cites heavy rainfall and runoff from adjoining lands as the most likely cause of this elevated result.

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



As can be seen from figure 4.13, suspended solids levels were above the 25ppm limit for Salmonid waters on two occasions at SW1a and on two occasions at SW2. A result of 741ppm suspended solids was recorded for SW1a in February 2013. This elevated result was attributed by the monitoring consultants to low stream water level with possible suspension of sediment during sampling. SW2 is located on a shallow channel flowing into stream 1, receiving runoff from adjacent forestry. The water level in this channel is normally low except during very heavy rainfall and it is possible that the elevated suspended solids result during June was also a result of sediment becoming suspended during the sampling process. Remaining results for streams 1, 2 and 3 were within the 25ppm limit for salmonid waters. The elevated result at SW2 in December 2013 was most likely due to the extremely heavy rainfall at the time.

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



The outlet from both stormwater ponds was within the 35ppm suspended solids limit throughout 2013. The result reported for Pond 2 in January 2013 was above 35ppm but was not considered to be a licence exceedence because



there was no outlet flow at the time; the sample was taken from the receiving channel. This was reported in the consultant’s environmental report for the period. Since that time, all outlet samples have been taken directly from the outlet manhole. On occasions when the manhole is dry due to no outlet flow, this is recorded in the sampler’s log and no sample is collected.

**4.6.2 Groundwater**

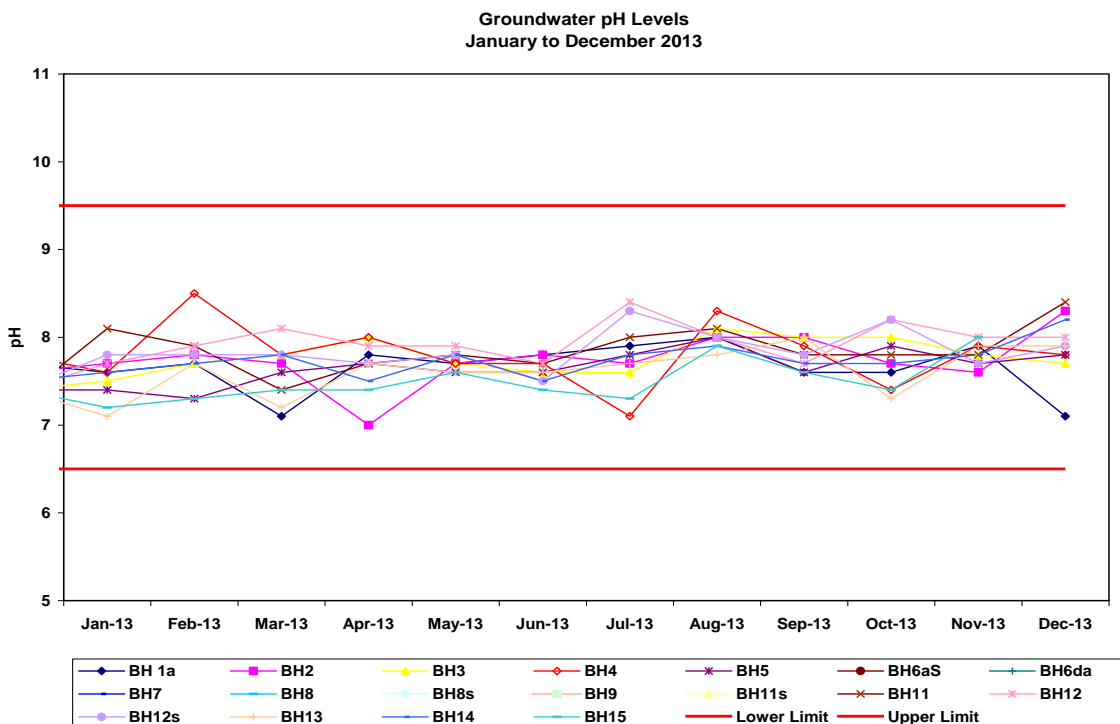
Groundwater monitoring was carried out on a monthly basis during the year at BH1a, BH2, BH3, BH4, BH5, BH6As and BH6Ad, BH8, BH9, BH11, BH12s, BH12d, BH13, BH14 and BH15. Four private wells were also monitored. Samples were analysed for the parameters and frequency specified in Schedule E5 of Waste Licence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

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 2013 as these parameters are monitored annually.

**4.6.2.1 Groundwater pH:**

Groundwater pH results from January to December 2013 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**

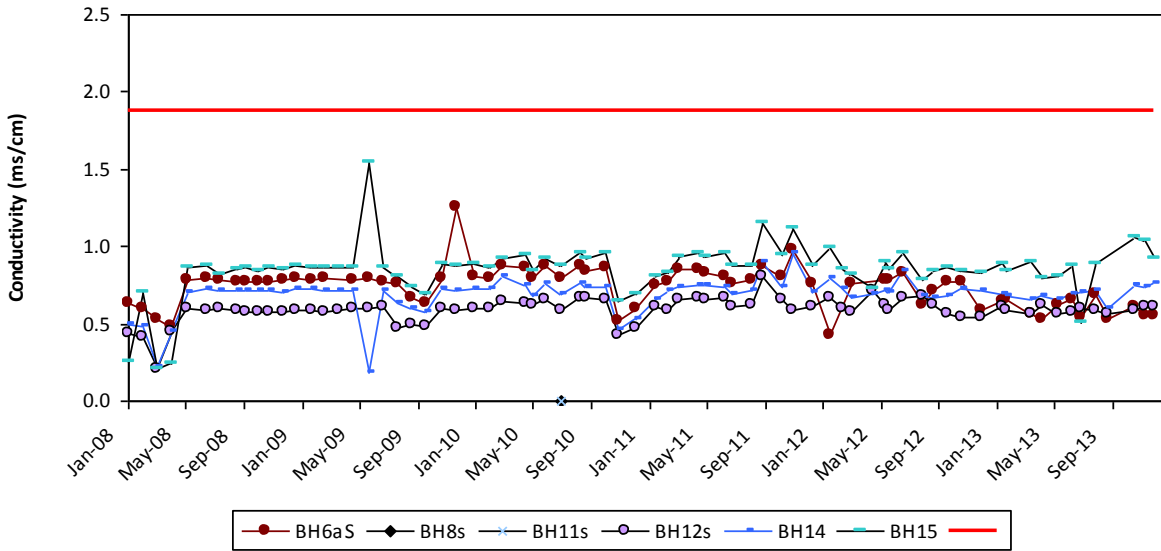


As can be seen from Figure 4.16, pH results were within the upper and lower IGVs for all groundwater samples during the year.

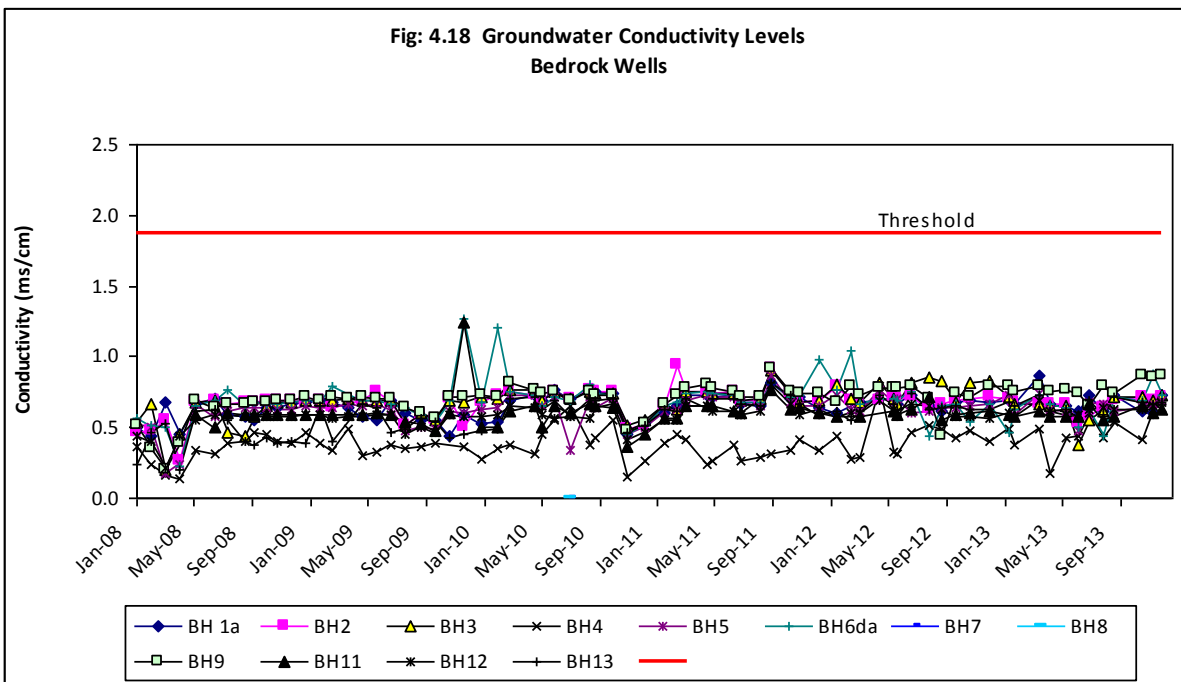
**4.6.2.2. Groundwater Conductivity:**

Groundwater conductivity results for 2008 to 2013 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 (in ms/cm).

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



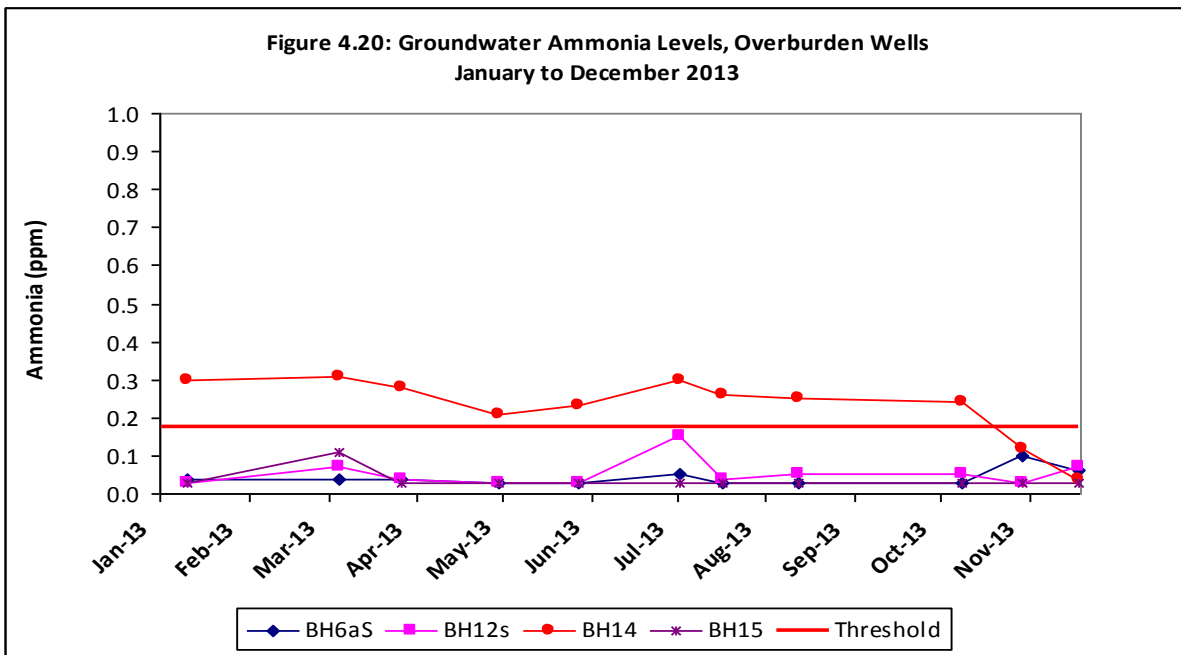
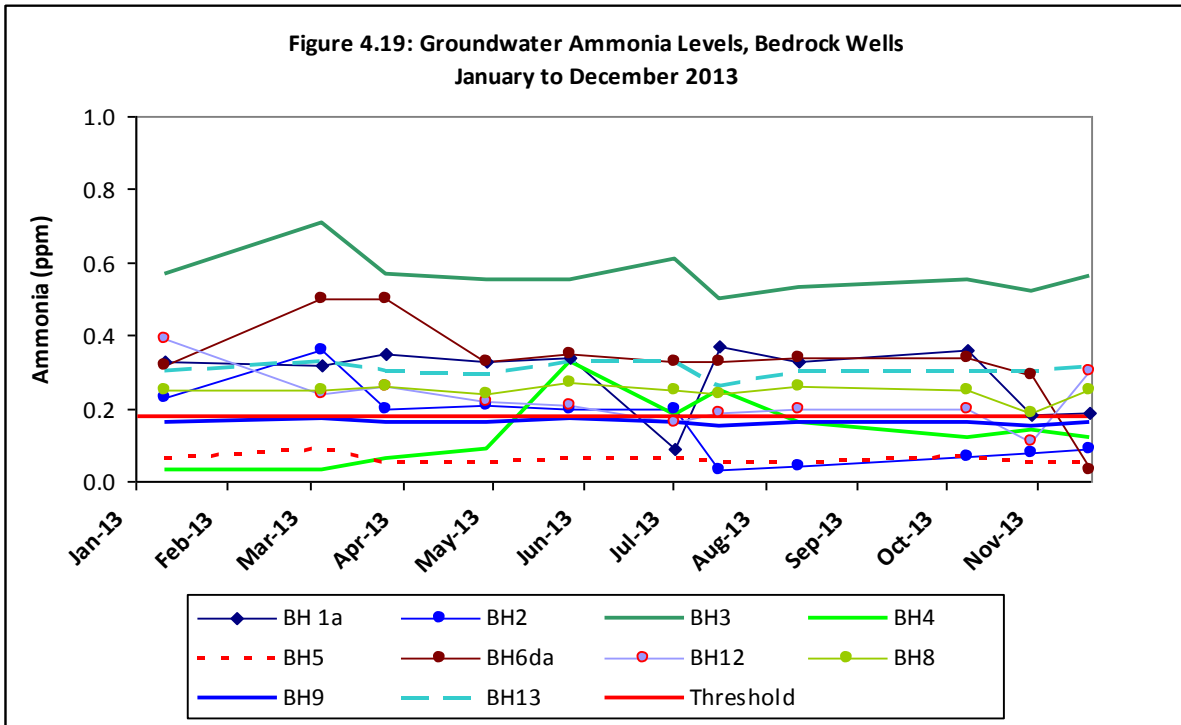
**Fig: 4.18 Groundwater Conductivity Levels  
Bedrock Wells**



There have been occasional problems in the past with elevated pH and conductivity levels in the area around BH6 (see previous AER's). However, conductivity levels at all wells were satisfactory for 2013.

**4.6.2.3 Groundwater Ammonia**

Groundwater ammonia results for 2013 are graphed below in figures 4.19 and 4.20. The groundwater ammonia threshold of 0.175ppm (from S.I.9, 2010) is also shown on the graphs.



As can be seen from the graphs, ammonia results for monitoring wells BH1A, BH3, BH6D, BH8, BH13 and BH14 exceeded the groundwater threshold of 0.175ppm (from SI 9, 2010). The threshold was marginally exceeded also at BH11d and BH12d. Ammonia results for bedrock wells BH5 and BH9 (upgradient) were consistently below the threshold level, as were results for overburden wells BH6s, BH12s and BH15. Results for BH2 and BH4 were elevated above 0.175ppm on occasion during the year. Highest results were observed in BH3, although no result exceeded 0.71ppm.

Mean results for all wells are shown below in tables 4.6 and 4.7 and illustrated in the photograph below (see Appendix 8.5 for a drawing of well locations).

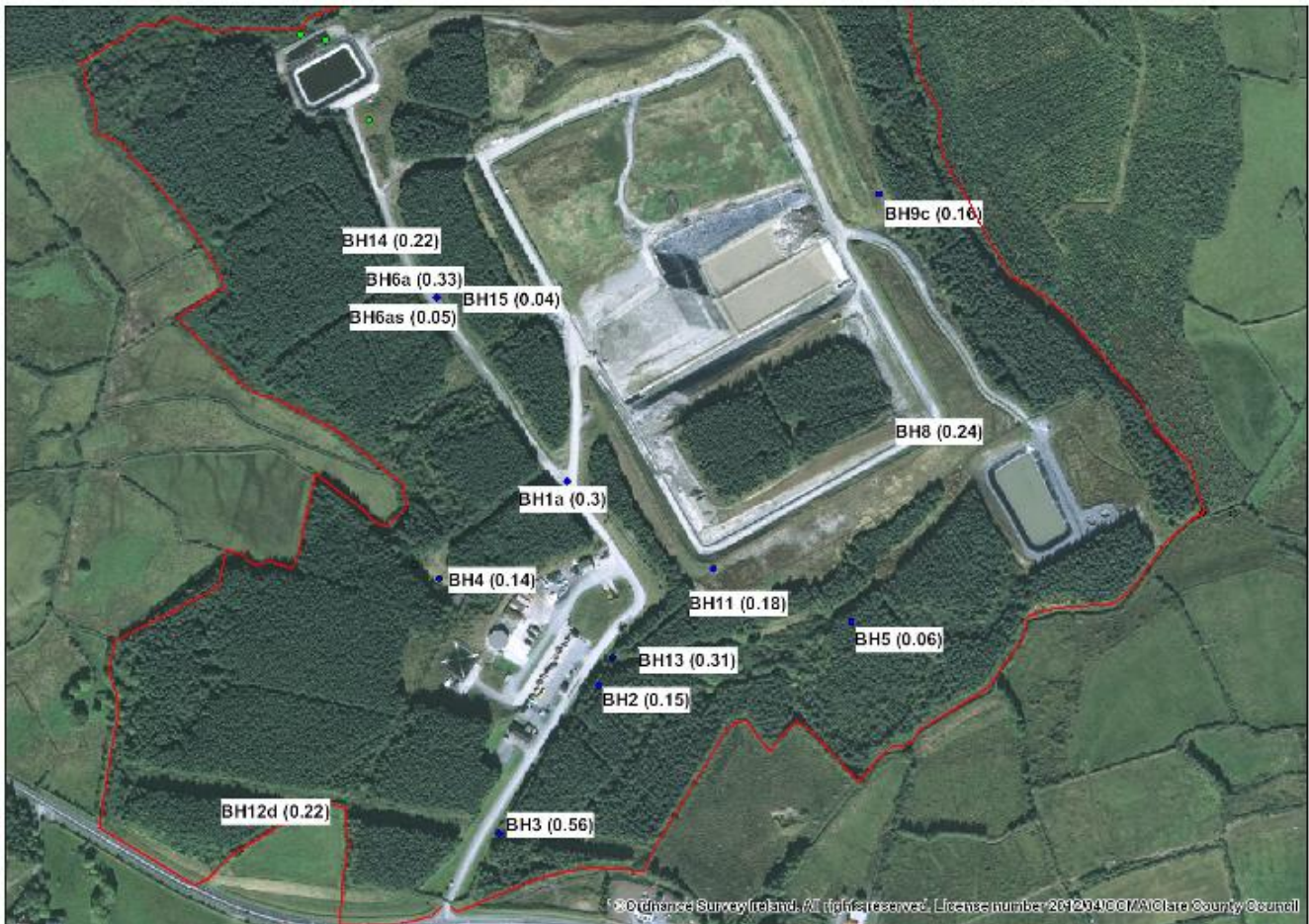
**Table 4.6: Mean ammonia results in bedrock wells, 2013.**

	BH1A	BH2	BH3	BH4	BH5	BH6D	BH8	BH9	BH11	BH12D	BH13
<b>Ammonia-N (ppm)</b>	0.3	0.15	0.56	0.14	0.06	0.33	0.24	0.16	0.18	0.22	0.31

**Table 4.7: Mean ammonia results in overburden wells, 2013.**

	BH6s	BH12S	BH14	BH15
<b>Ammonia-N (ppm)</b>	0.05	0.05	0.22	0.04

Slightly elevated groundwater ammonia levels have been observed since prior to the commencement of landfilling at the site. Ammonia results for the water supply well located upgradient of the landfill exceeded



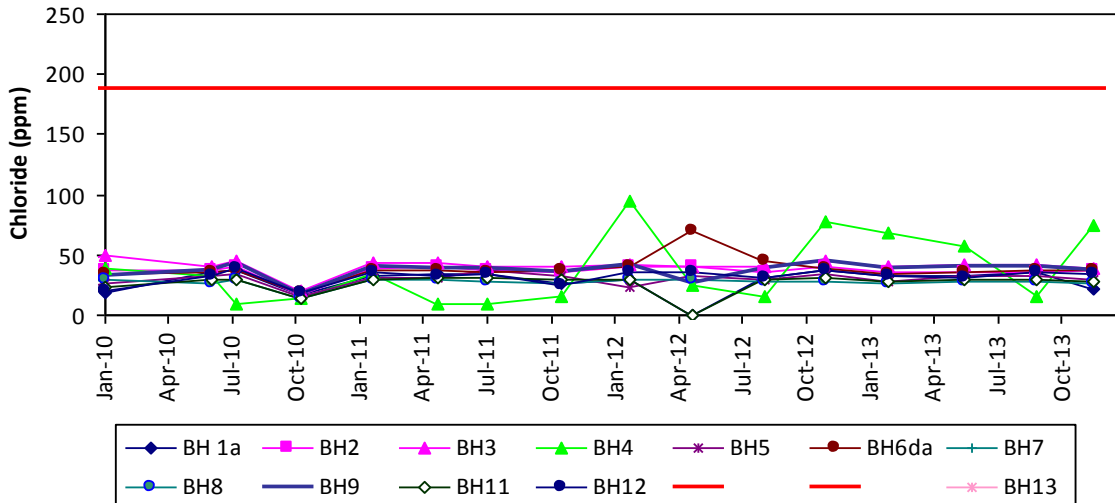
drinking water limits from 2002 so this well never been used as a source of drinking water for the site. The elevated results are possibly attributable to the use of fertiliser during the original forestry planting in the mid 1980's.

As the aerial photograph shows, BH3, which had highest mean ammonia results in 2013, is furthest from the landfill. Lower ammonia results were observed upgradient of BH3, at BH2, BH4, BH13 and BH11, indicating that landfill activities are not contributing to the groundwater ammonia levels at BH3. However, the possibility of a linkage between groundwater ammonia levels and landfilling activities will be assessed under the groundwater risk screening assessment to be carried out during 2014 under Technical Amendment A of W0109-02

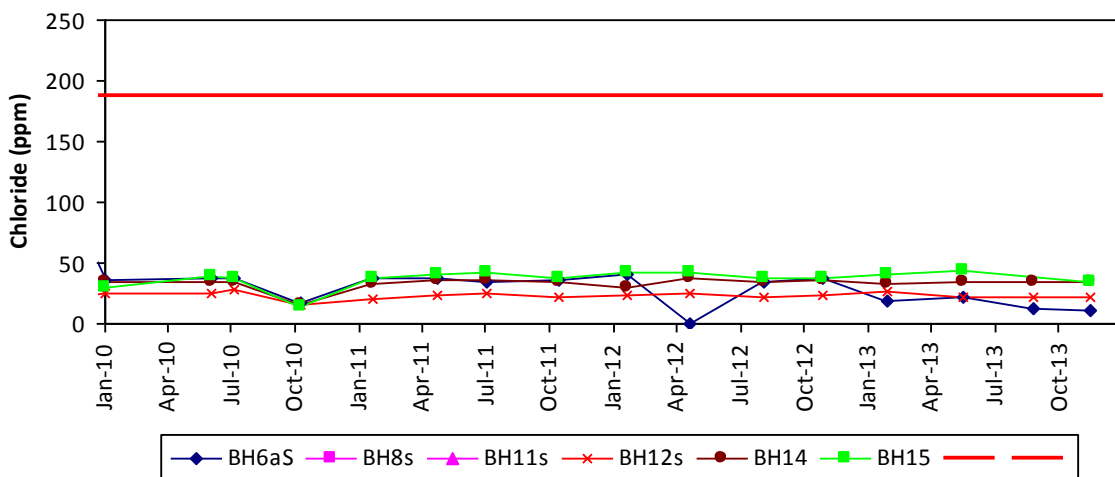
**4.6.2.4 Groundwater Chloride.**

Groundwater chloride levels from 2010 to 2013 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, 2010 to 2013**



**Figure 4.22: Groundwater Chloride Levels  
Overburden Wells, 2010 to 2013**



As can be seen from the graphs, all groundwater chloride results significantly below the groundwater threshold level of 187.5ppm.

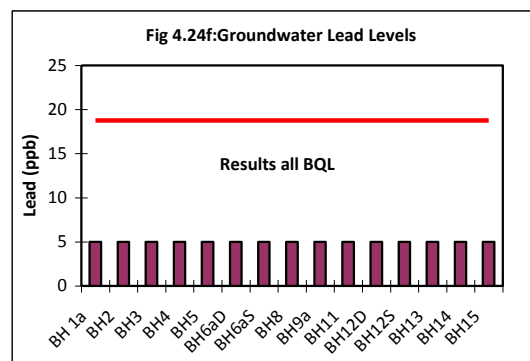
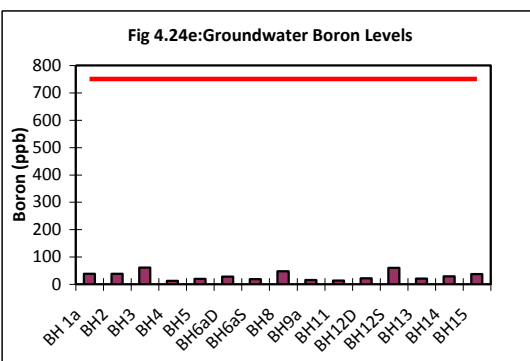
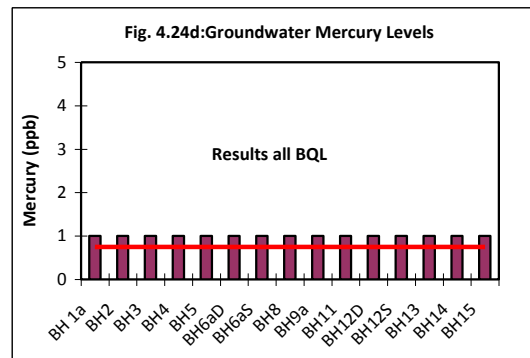
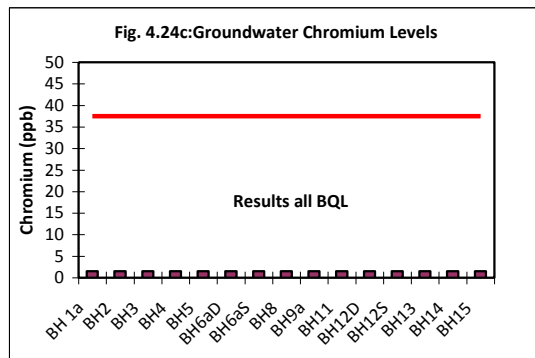
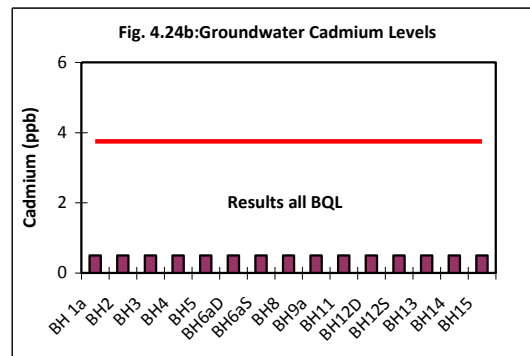
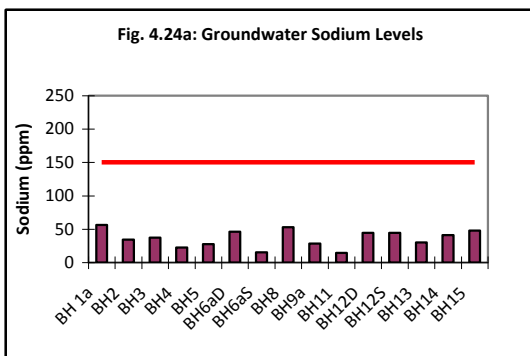
#### 4.6.2.5 Groundwater volatile and semi-volatile organic compounds

Groundwater samples were analysed for VOC's and sVOC's in September 2013. Results were below method detection limits for all samples (<1ppb).

#### 4.6.2.6 Groundwater metals levels:

Groundwater samples were analysed for metals in September 2013. Results are graphed below in figures 4.24a to 4.24f.

Figure 4.24a to 4.24f; Groundwater Metals Levels (2013)



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.**

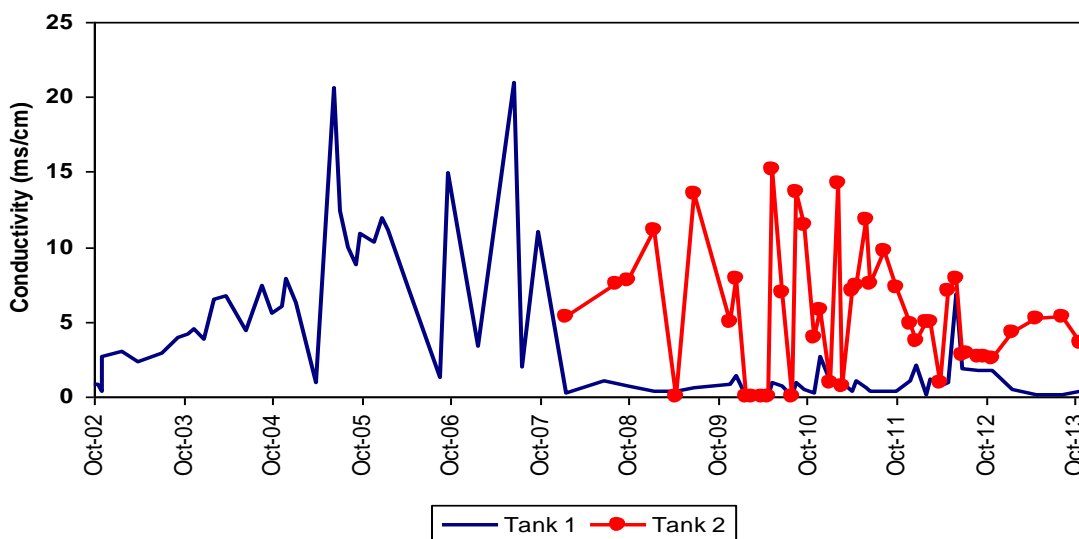
Leachate generated on site is discharged to one of two storage tanks for transport to a designated wastewater treatment facility. An underground storage tank (tank 1) was installed when the facility was initially developed. Up to November 2007, all leachate generated on site was discharged to this tank, 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 runoff from the composting area and from potentially contaminated areas of the civic amenity site only.

Results for tanks 1 and 2, for conductivity, BOD, COD and ammonia, are graphed in figures 4.24 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 2013**





4.6.3.2 Leachate BOD and COD

Leachate BOD and COD results for 2013 are graphed below in figures 4.25 and 4.26.

Figure 4.25: Leachate BOD Levels  
January to December 2013

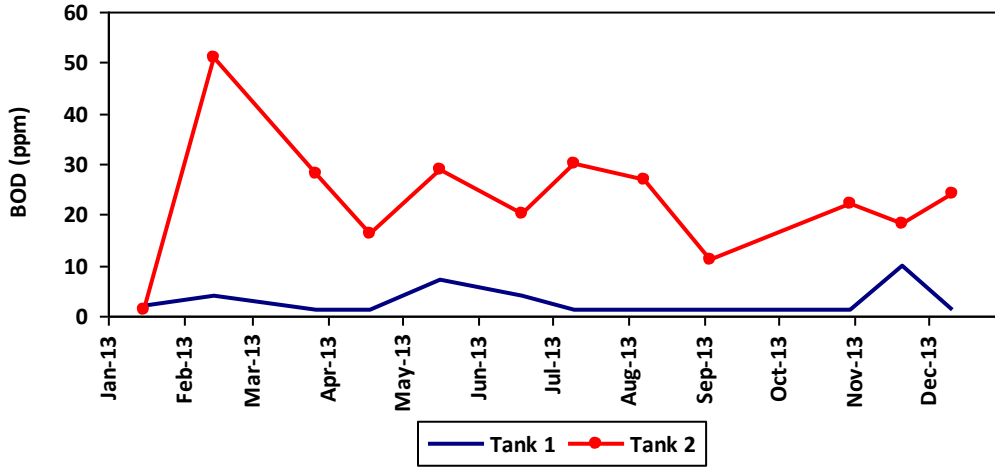
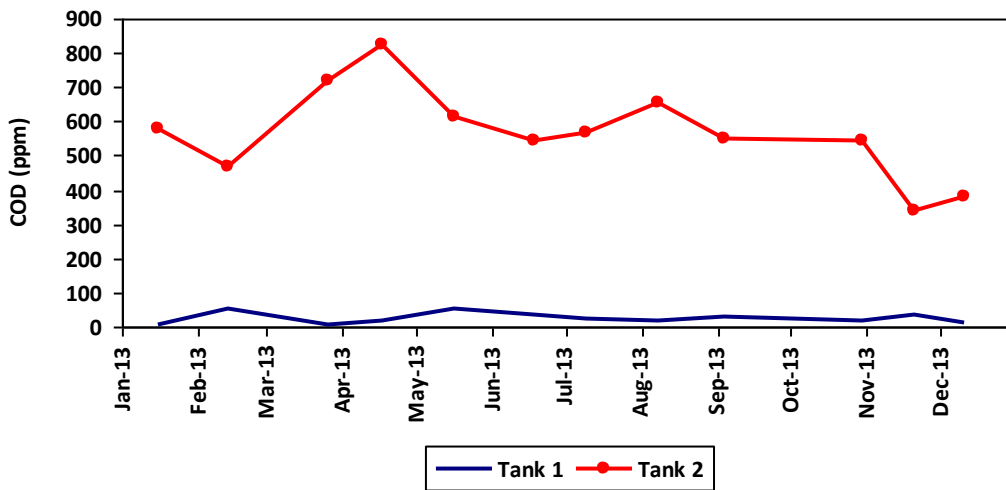


Figure 4.26: Leachate COD Levels  
January to December 2013

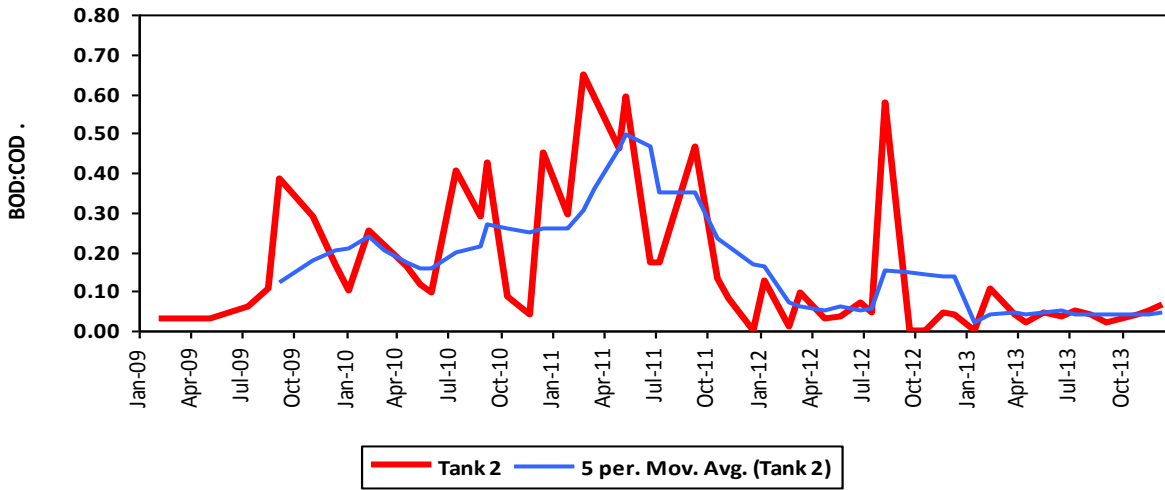


In the 2012 AER, an unusual trend in the BOD levels was identified, with similar BOD results in the leachate from both tanks. This was in contrast to previous monitoring results in which tank 1 BOD levels were consistently lower than tank 2. As can be seen in figure 4.26, BOD results for 2013 were similar to pre-2012 results, with significantly lower BOD levels in tank 1 compared to tank 2.

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 2013 is graphed below in figure 4.27. The ratio remained well below 0.3 throughout the monitoring period.



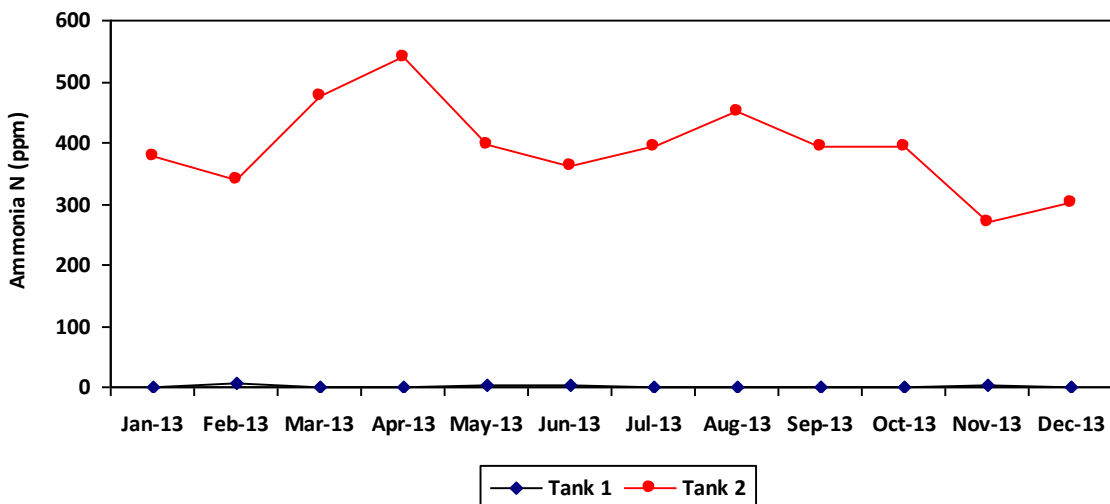
Figure 4.27: Leachate BOD:COD Ratio  
January 2009 to December 2013



4.6.3.3 Leachate Ammonia Levels.

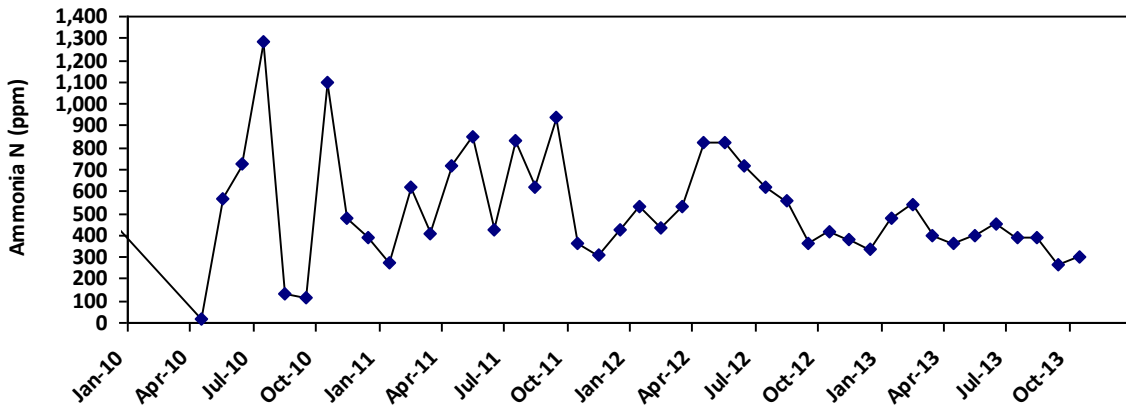
Leachate ammonia results from January to December 2013 are graphed below in figure 4.28. As would be expected, ammonia levels in tank 2 (landfill leachate tank) were significantly higher than in tank 1 (CA site runoff tank). The mean result for tank 1 was 1.6ppm (max: 6.6 ppm). Levels in tank 2 were within the expected range for landfill leachate, with a mean of 390ppm ammonia nitrogen and a maximum result of 539ppm.

Figure 4.28: Leachate Ammonia Levels  
January to December 2013



Leachate ammonia results have reduced over the past four years, as can be seen in figure 4.29, below:

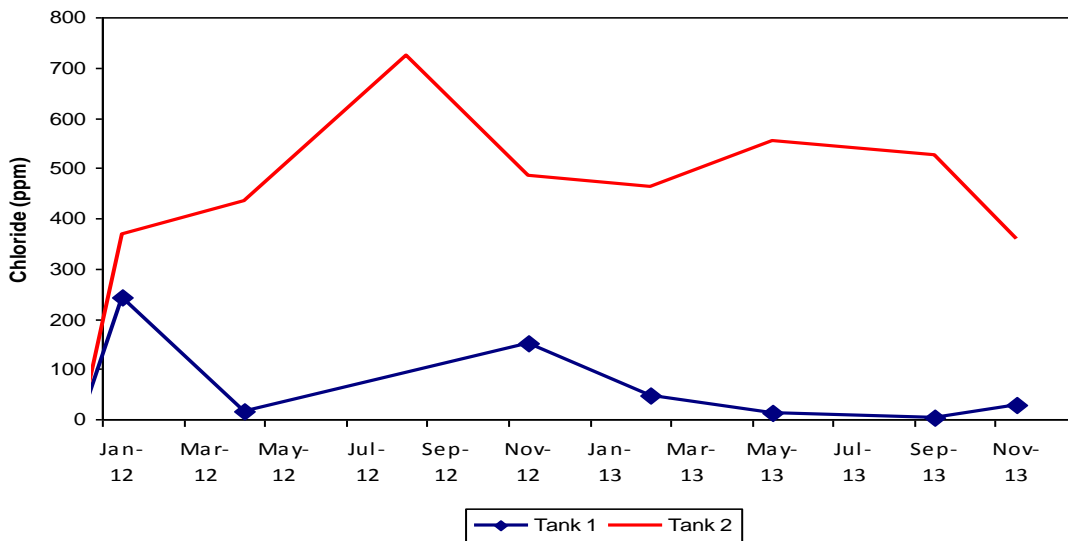
Figure 4.29: Leachate Ammonia Levels  
January 2010 to December 2013



#### 4.6.3.4 Leachate Chloride Levels

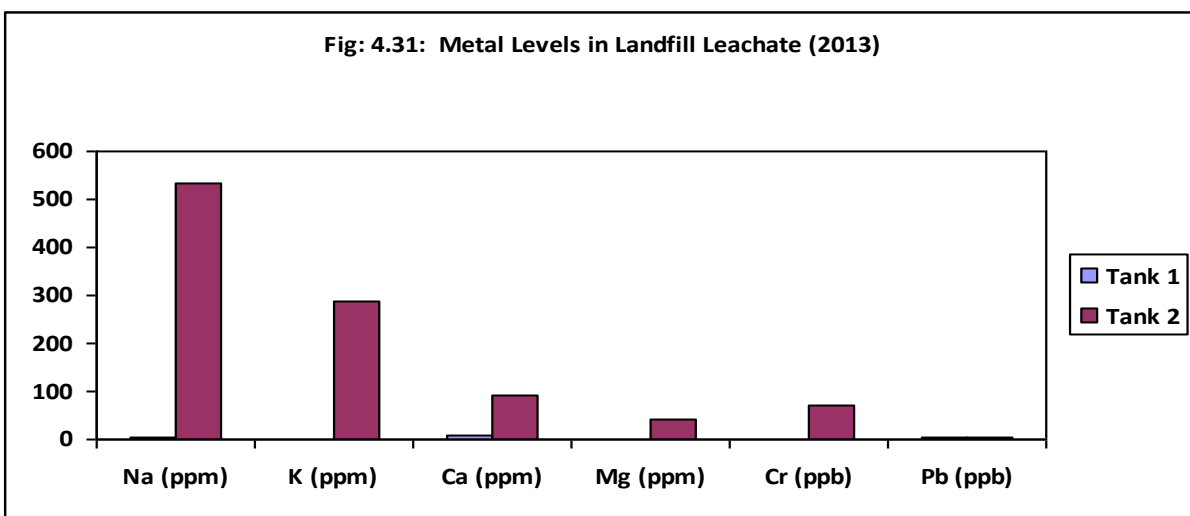
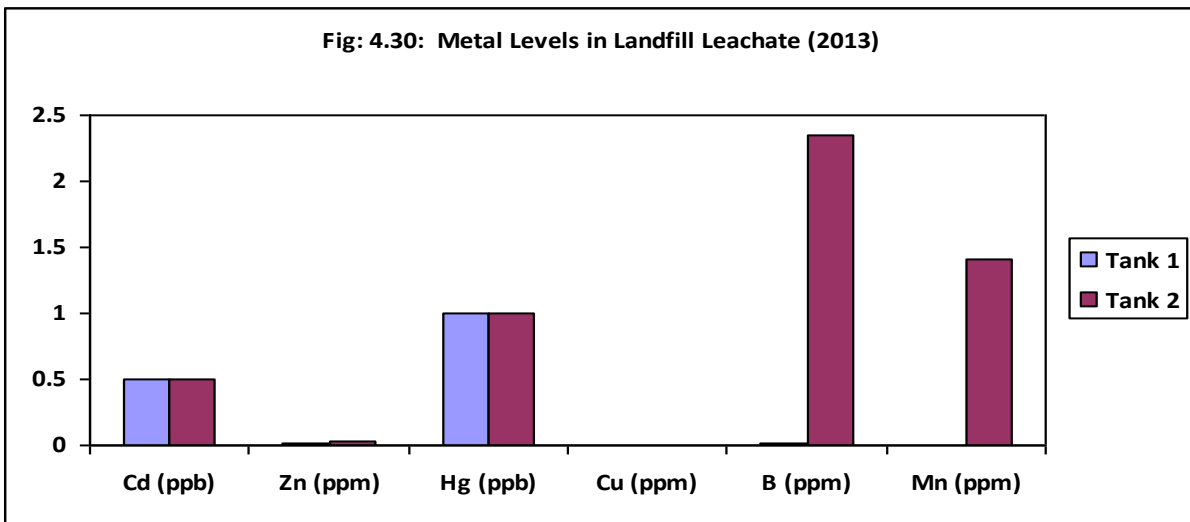
Leachate chloride levels are graphed in figure 4.29 for the period January 2009 to December 2013. With the exception of one very elevated result in January 2011, chloride levels in the landfill leachate were generally below 1,500ppm. As expected, CA site runoff levels (tank 1) were considerably lower.

Figure 4.29: Leachate Chloride Levels  
January 2012 to December 2013



#### 4.6.3.5 Leachate Chloride Levels

Results for leachate metals are shown below in figures 4.30 and 4.31. Where metals were detectable in the samples, results were significantly lower in tank 1. For cadmium, copper, lead and mercury, results for both tanks were below detection limits.



In summary, levels of leachate parameters (tank 2) were within the ranges expected for municipal waste landfills. Levels of most parameters were significantly higher in 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 18<sup>th</sup> July 2013. The report concluded 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 13<sup>th</sup> August 2013. 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 26<sup>th</sup> April and on the 5<sup>th</sup> June 2013. These surveys have been conducted at the facility since 2002. Thirty one bird species were recorded. The ecologist noted the presence, for the first time, of nesting Little Grebe in the new storm water pond during this survey.

Two surveys for Hen Harriers were carried out on the same dates as the countryside bird surveys. One lone female was sighted in June 2013.

#### 4.8 EPA Site Visits

The following is a summary of EPA site visits made during 2013:

- The EPA inspector for the facility carried out a site inspection in June 2013. A number of observations were noted but no non-compliances were received.
- EPA monitoring personnel were on site in July 2013 to conduct groundwater and surface water monitoring. Results were similar to those obtained on behalf of Clare County Council by monitoring consultants.

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### 5. WORKS PROGRAMME 2013/2014

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#### 5.1 Development Works carried out during 2013

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 2013 (NON-EXHAUSTIVE).**

Site Development Works	Completion Date
Automation of site weighbridge	End of August 2013
Civic amenity site redesign (revised layout implemented).	End of August 2013

#### 5.2 Proposed Development Works 2014

Proposed site development works for 2014 are set out in Table 5.2 below. All projects will require EPA approval to implement:

**TABLE 5.2: PROPOSED DEVELOPMENT WORKS FOR 2014**

Description of Works	Date
Investigation of possibilities for further leachate reduction.	Preliminary investigation has commenced.
Introduction of forestry management within the site	End of 2014
Investigation of alternatives for landfill gas, including use for generation of biomethane	Ongoing with UL and LCEA

### 5.3 Progress to Site Restoration

A site 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 most recent site survey was carried out in late 2012. A repeat survey is due and will be carried out shortly.

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## 6. FINANCIAL ASPECTS

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### 6.1 Annual Budget and Operating Costs

The annual budget for the Central Waste Management Facility for 2013 is outlined in Table 6.1 below.

**TABLE 6.1: SUMMARY OF FINANCIAL PROVISIONS 2013**

Item	2013 budget
CWMF - Landfill operation	€294,758
CWMF - Recycling centre operation	€422,092
CWMF - Compost operation	€64,799
<b>Total</b>	<b>€781,649</b>

### 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). Three members of the CLMC sit on a fund adjudication panel, along with three external members. Up to and including tranche 4, eligible local communities (Inagh, Cloonanaha and Kilnamona) applied to the committee for funding for community projects. Applications were assessed by the committee, with a weighting criteria applied; projects nearest to the facility carried the greatest weighting. The approach to distribution of the final tranche (5) has been changed with the agreement of the committee. Tranche 5 will be distributed to residences within a 1.5km radius of the centre of the landfill footprint (filled area) for home improvement projects of an environmental/energy saving nature.

### **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).

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## **7. REVIEW**

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### **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. Bird control measures are no longer required at the facility.

#### **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. At the March 2013 CLMC meeting, one local resident made a general complaint in relation to Saturday afternoon waste odours. However no odours have been detected by the odour patrol or by site staff since November 2011.

##### **Landfill Gas Odours:**

The landfill is closed and capped. 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. Odour Monitoring Ireland carried out surface VOC profile surveys on the landfill cap on two occasions during 2013. No emissions were detected.

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 odours were detected during 2013. 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 2013 were within the ambient dust limit of 350mg/m<sup>2</sup> 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**

No complaints were received at the facility or via the EPA during 2013. During the March 2013 CLMC meeting one local resident complained that waste odours had been detected on a number of Saturday afternoons. Details of this complaint were 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 in 2010 to reflect changes in operation of the facility. The schedule of objectives and targets for the 2010 version of the plan are summarised below. The EMP has since been revised to take account of the landfill closure. A summary of interim objectives and targets for 2014 is included in section 7.2.6. A revised five year EMP will be prepared in early 2015, taking into account longer term objectives for the site.

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

This objective was met. See 2012 AER for full details.

### **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 for the present.

### **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.

The revised EMP includes objectives for further leachate reduction.

#### **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 site procedures is provided in Appendix 8.6.

#### **7.2.6. Revised Objectives for 2014.**

The EMP was revised in early 2014 and three key objectives have been identified:

- Objective 1: Reduce the tonnage of landfill leachate and civic amenity site runoff removed from the facility.
- Objective 2: Investigate feasibility of converting landfill gas to compressed natural gas for use as heat or vehicle fuel.
- Objective 3: Put in place a forestry management plan for the site.

The schedule of tasks and timeframe for completion specified in the EMS covers the 2014 period only. The EMS will be further revised in early 2015 when a decision has been made on the longer term use of the site.

### **7.3 Programme of Public Information**

The following information is held in the site office and in the Environment Section in Aras Contae an Chlair:

- A copy of the waste licence and amendments.
- 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 was 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. When the landfill closed, the meeting frequency was reduced to quarterly. As the landfill has now been closed for over two years, the meeting frequency is again under review.

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 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 uploaded to the EPA via EDEN. 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 2013**

Nature of Incident	Number of Incidents
SCADA/Equipment malfunction:	3
Perimeter well gas levels:	12
Groundwater pH	1

Condition 3 of W0109-02 requires that the licensee shall make written records of all complaints. Details of complaints received during 2013 are summarised below.

**Table 7.10: Summary of Complaints Received During 2013.**

Date	Details of Complaint and Corrective Actions Taken
Received during March'13 CLMC meeting	Complaint of waste odour arising on Saturday afternoons. 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.

## **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 and from Clare County Council's gardening and roads sections is brought to the CWMF site 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 augur 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 2,400 tonnes of green waste for composting since 2006. 400 tonnes (minimum) of green waste was received during 2013. This total is an estimate only as green waste brought directly to the CWMF facility by private customers is not weighed.

### **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 pay kiosk 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 recently reviewed and revised to reflect changes resulting from the landfill closure. A copy of the plan is retained on file at the facility.

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## **8. APPENDICES**

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## **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**



**Appendix 8.2: Water Mass Balance Calculation 2013**

Month	Monthly total rainfall Figures (mm) (Ennistymon)	Monthly Effective rainfall Figures (mm) (Ennistymon)	Landfill Operations			Area (m <sup>2</sup> )				Infiltration (m <sup>3</sup> )			Estimated Total Leachate (m <sup>3</sup> )	
			Active Cell	Temp Cap	Full Cap	Active Area*	Temp Cap	Full Cap*	Concrete*	Active Area @ 100% estimated infiltration	Full Cap @ 10% estimated infiltration, using effective rainfall	Concrete @ 100% infiltration (total rainfall figure used, not PE)	Monthly	Cumulative
January	156.4	142.8	None	0	Cells 1 - 13	0	0	70,000	2,600	0	1,000	407	1,406	454
February	62.9	43.5	None	0	Cells 1 - 13	0	0	70,000	2,600	0	304	164	468	922
March	48.6	14.1	None	0	Cells 1 - 13	0	0	70,000	2,600	0	99	126	225	1,147
April	103.5	44.2	None	0	Cells 1 - 13	0	0	70,000	2,600	0	310	269	579	1,726
May	102.9	33.2	None	0	Cells 1 - 13	0	0	70,000	2,600	0	233	268	500	2,226
June	80.7	-0.1	None	0	Cells 1 - 13	0	0	70,000	2,600	0	-1	210	209	2,435
July	127.5	25.2	None	0	Cells 1 - 13	0	0	70,000	2,600	0	176	332	508	2,942
August	82.7	12.7	None	0	Cells 1 - 13	0	0	70,000	2,600	0	89	215	304	3,246
September	61.8	17.1	None	0	Cells 1 - 13	0	0	70,000	2,600	0	120	161	281	3,527
October	142.2	112.0	None	0	Cells 1 - 13	0	0	70,000	2,600	0	784	370	1,154	4,680
November	134.4	120.5	None	0	Cells 1 - 13	0	0	70,000	2,600	0	844	349	1,193	5,874
December	239.4	223.1	None	0	Cells 1 - 13	0	0	70,000	2,600	0	1,562	622	2,184	8,058
<b>Maximum estimated leachate volume (m3), (using total rainfall for concrete area and effective rainfall for landfill:</b>											<b>5,518</b>	<b>3,492</b>	<b>9,010</b>	

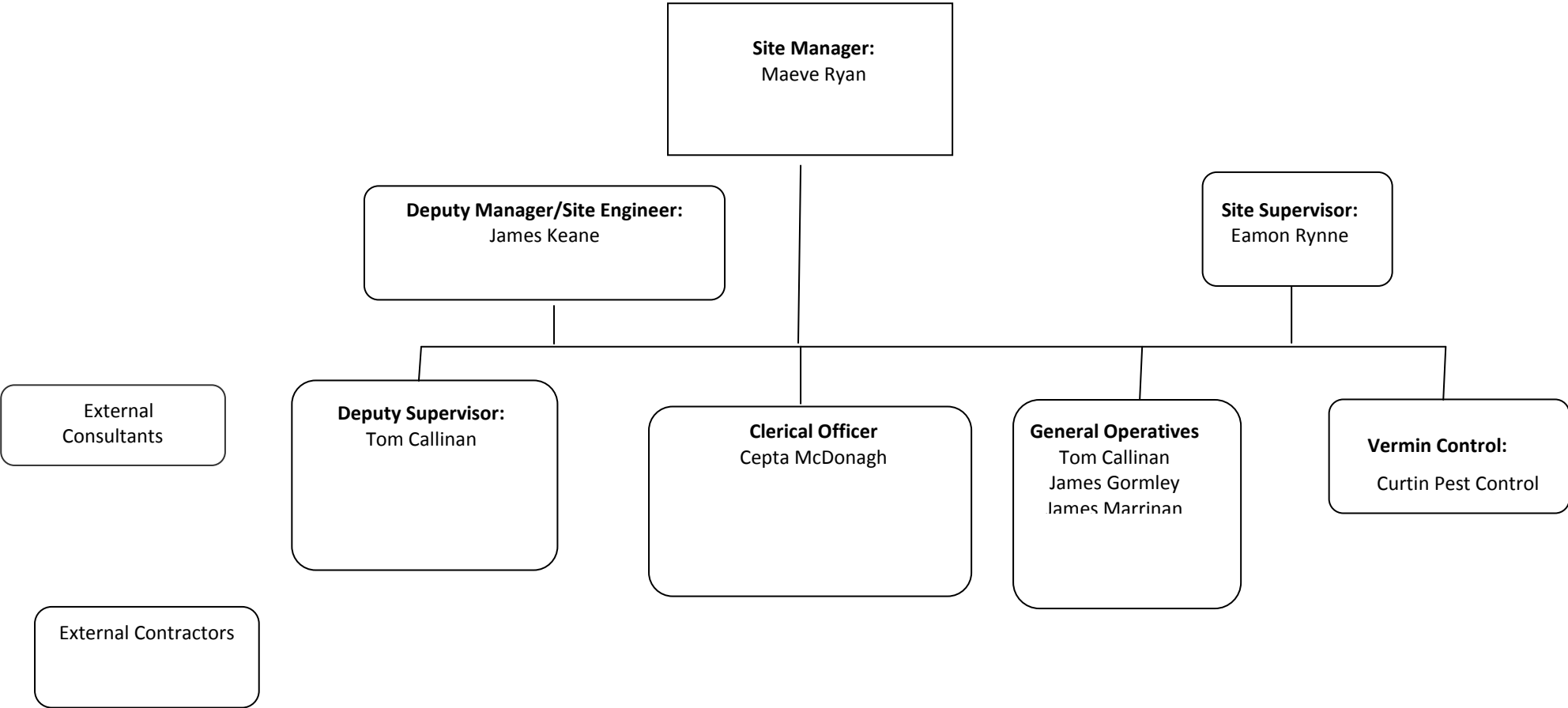
Area was measured and confirmed to be 2 400

Met Eireann PE data is only available for Shannon. However, total rainfall for Ennistymon was 44% greater than Shannon in 2013. TO calculate rainfall in landfill area, Ennistymon total was used with the Shannon PE data, to estimate effective rainfall. To calculate total runoff from concrete, the total Ennistymoijn rainfall data was used as there is no transpiration effect on concrete. There would be a reduction through evaporation here, so the figures used for these calculations are an overestimate of concrete runoff volumes. .

Actual leachate total for 2013 = 9652.4.

### **8.3 Management Structure**

**Appendix 8.3: Site Management Structure, Central Waste Management Facility**



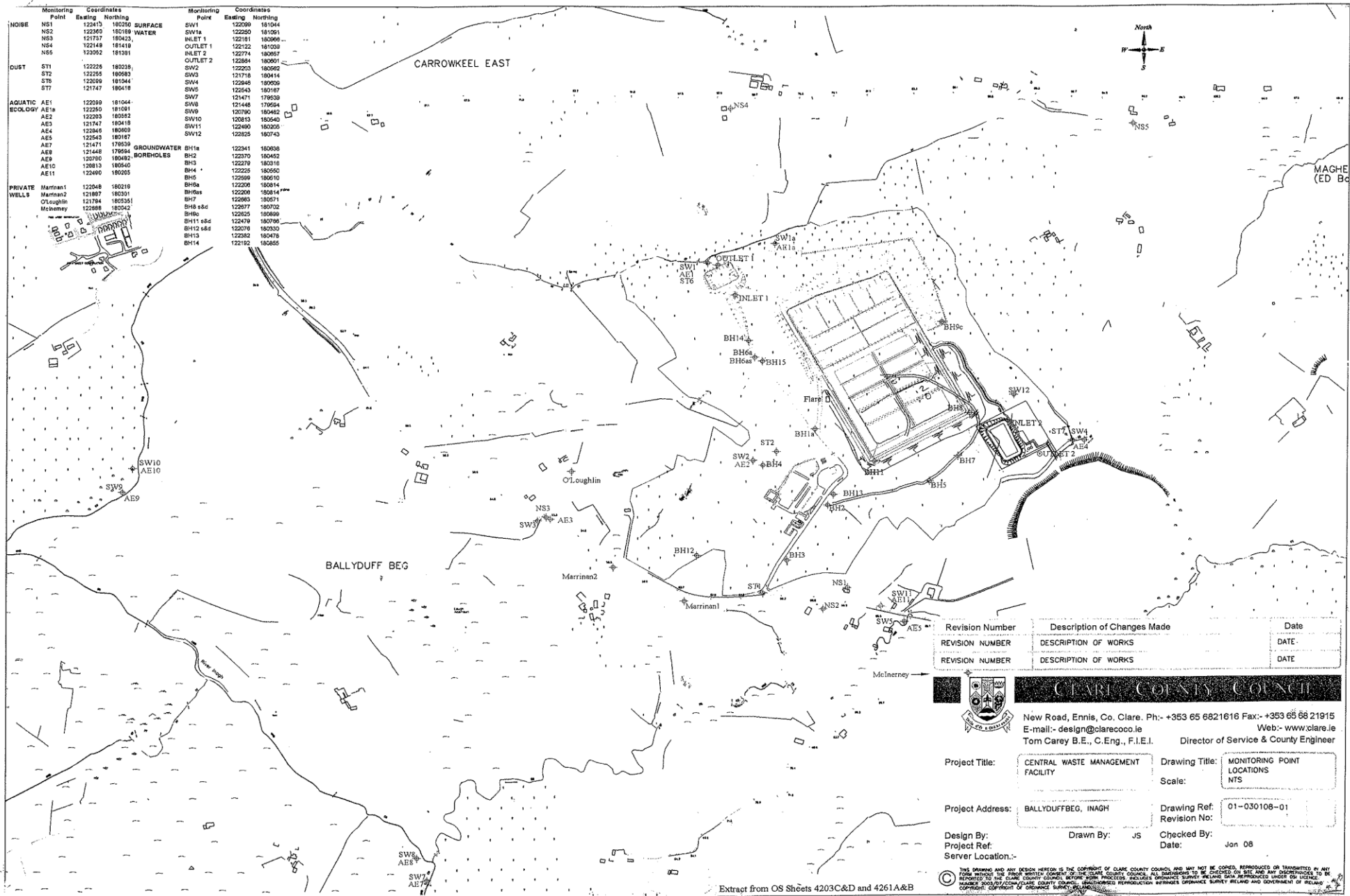
#### **8.4 Summary Details of Incident Reports Issued During 2013**

Central Waste Management Facility, Ballyduff Beg

Incident Report Tracking Sheet 2013

Incident Report Ref	Subject	Date
2013/01	Perimeter well gas levels January 2013	03/01/2013
INCI000890	Perimeter well gas levels February 2013	12/02/2013
INCI000974	Perimeter well gas levels March 2013	08/03/2013
INCI001204	Perimeter well gas levels April 2013	09/04/2013
INCI001459	Perimeter well gas levels May 2013	14/05/2013
INCI001524	TOC analyser on Pond 1	24/05/2013
INCI001641	Perimeter well gas levels June 2013	11/06/2013
INCI001823	Perimeter well gas levels July 2013	05/07/2013
INCI002125	Perimeter well gas levels August 2013	13/08/2013
INCI002329	Perimeter well gas levels September 2013	17/09/2013
INCI002486	Perimeter well gas levels October 2013	08/10/2013
INCI002686	Perimeter well gas levels November 2013	04/11/2013
INCI002688	Transducer failure cell 13	04/11/2013
INCI002803	TOC analyser on Pond 1	22/11/2013
INCI002804	Elevated pH in BH6aD	22/11/2013
INCI002906	Perimeter well gas levels December 2013	09/12/2013

## **8.5 Monitoring Point Location Map**



Monitoring Point	Coordinates	Monitoring Point	Coordinates
Easting	Northing	Easting	Northing
NOISE NS1	12413 180250	SURFACE SW1	12209 181044
NS2	12360 180189	WATER SW1a	12250 181091
NS3	12137 180423	INLET 1	12181 180069
NS4	12148 181418	OUTLET 1	12212 181039
NS5	12302 181381	INLET 2	12274 180987
DUST ST1	12226 180338	OUTLET 2	12284 180901
ST2	12258 180983	SW2	12203 180582
ST3	12309 181341	SW3	12178 180414
ST7	12174 180418	SW4	12246 180539
AQUATIC ECOLOGY AE1	12209 181044	SW5	12243 180187
AE1a	12250 181091	SW7	12141 179539
AE2	12203 180582	SW8	12148 179584
AE3	12174 180418	SW9	12079 180482
AE4	12246 180539	SW10	12081 180540
AE5	12243 180187	SW11	12240 180205
AE7	12141 179539	SW12	12282 180743
AE8	12148 179584	GROUNDWATER BOREHOLES BH1a	12234 180938
AE9	12079 180482	BH2	12270 180452
AE10	12081 180540	BH3	12279 180316
AE11	12340 180205	BH4	12225 180560
PRIVATE WELL		BH5	12266 180610
Marrinan1	12248 180216	BH6a	12220 180814
Marrinan2	12187 180291	BH6b	12208 180814
O'Loughlin	12178 180535	BH7	12083 180571
McInerney	12298 180542	BH8 s&d	12207 180702
		BH9	12252 180869
		BH11 s&d	12249 180790
		BH12 s&d	12278 180230
		BH13	12282 180478
		BH14	12212 180855

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 NTS
Project Address:	BALLYDUFFBEG, INAGH	Scale:	
Design By:		Drawing Ref:	01-030108-01
Project Ref:		Revision No:	
Sever Location:-		Checked By:	
		Date:	Jan 08
		Drawn By:	JS

Extract from OS Sheets 4203C&D and 4261A&B

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## **8.6 List of Site Standard Operating Procedures**



### Site Procedures List

<b>SOP</b>	<b>Description</b>	<b>Last Revision Date</b>
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>	18/09/2013
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>	02/10/2013
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>	18/09/2013
21	<i>Procedure for Removal of Recyclable Waste from the Civic Amenity Site</i>	18/09/2013
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
25	<i>Procedure for maintenance of the landfill gas flare</i>	15/07/2013

## **8.7 Landfill Gas Survey Returns for 2013**

## A survey of landfill sites to determine the quantity of methane flared and or recovered in utilisation plants for 2013

Please choose from the drop down menu the license number for your site	W0109
Please choose from the drop down menu the name of the landfill site	Ballyduff Beg
Please enter the number of flares operational at your site in 2013	1
Please enter the number of engines operational at your site in 2013	0
Total methane flared	922,410 kg/year
Total methane utilised in engines	0 kg/year

**Please note that the closing date for receipt of completed surveys is 31/03/2014**

### 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](mailto: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\_2013) to:

[LFGProject@epa.ie](mailto:LFGProject@epa.ie)

to be filled in by licensee	calculated by spreadsheet
-----------------------------	---------------------------

**Flare No. 1**

Flare type ?  If "other" enter flare description here

Is the flare an open or enclosed flare ?  Rated flare capacity ?  m3/hr

Month /year comissioned ?

Month decomissioned if decomissioned in 2013 ?

What is the function of the flare ?  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 <sup>3</sup> /hr)	Average CH <sub>4</sub> %v/v	Average CO <sub>2</sub> %v/v	Average O <sub>2</sub> %v/v	Combustion efficiency (%)	Total CH <sub>4</sub> m <sup>3</sup>	Total CH <sub>4</sub> kgs
January	M	31	24.0	0.0	744	-24	600	30.70	19.80	1.10	99.9	136,908	92,289
February	M	28	24.0	6.0	666	-22	588	29.50	19.10	1.00	99.9	115,409	77,954
March	M	31	24.0	0.0	744	-17	550	29.70	29.80	1.00	99.9	121,411	82,422
April	M	30	24.0	2.0	718	-15	509	30.40	20.30	1.00	99.9	110,989	75,498
May	M	31	24.0	0.0	744	-24	494	31.90	23.90	1.00	99.9	117,127	78,955
June	M	30	24.0	0.0	720	-14	494	31.00	24.30	1.00	99.9	110,151	75,003
July	M	31	24.0	0.0	744	-13	492	32.00	24.40	1.00	99.9	117,018	79,759
August	M	31	24.0	3.0	741	-14	501	31.90	25.30	1.00	99.9	118,307	80,557
September	M	30	24.0	0.0	720	-13	500	30.80	23.50	3.00	99.9	110,769	75,499
October	M	31	24.0	1.0	743	-13	468	31.80	24.10	2.20	99.9	110,466	75,292
November	M	31	24.0	1.0	743	-15	453	28.60	21.90	2.90	99.9	96,165	65,414
December	M	31	24.0	2.0	742	-11	413	30.50	22.10	2.70	99.9	93,373	63,769
Total					8,769							1,358,092	922,410

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 <sup>3</sup> /hr	Average CH <sub>4</sub> %v/v	Average CO <sub>2</sub> %v/v	Average O <sub>2</sub> %v/v	Combustion efficiency (%)	Total CH <sub>4</sub> m <sup>3</sup>	Total CH <sub>4</sub> kgs
2013					0						98.0	0	0

## **8.8 PRTR Returns for 2013**

# AER Returns Workbook

<b>REFERENCE YEAR</b>	2013
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## 1. FACILITY IDENTIFICATION

Parent Company Name	Clare County Council
Facility Name	Inagh
PRTR Identification Number	WD109
Licence Number	WD109-02

### 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	-9.14862 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	Exec Scientist
AER Returns Contact Telephone Number	065 6836960
AER Returns Contact Mobile Phone Number	
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	9
User Feedback/Comments	Variance in TA Luft and other organics in Air sheet is due to an error in reporting of this data in the 2012 sheet (details have been emailed to aer prtr helpdesk).
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

4.1 RELEASES TO AIR

[Link to previous years emissions data](#)

[PRTR#: WD109 | Facility Name : Inagh | Filename : w0109\_2013(1).xls | Return Year : 2013 |

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SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR									
POLLUTANT		METHOD			Please enter all quantities in this section in KGs				
No. Annex II	Name	M/C/E	Method Used		ADD EMISSION POINT	QUANTITY			
			Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
01	Methane (CH4)	C	OTH	Gas generation figure from model minus gas flared from LFG survey returns	0.0	11877.0	0.0	11877.0	
02	Carbon monoxide (CO)	M	EN 15058:2004		61.57	61.57	0.0	0.0	
03	Carbon dioxide (CO2)	C	OTH	Total calculated from actual CO2 % in flare inlet (LFG survey returns) + CO2 converted from CH4 in flare inlet	3768623.0	3768623.0	0.0	0.0	
08	Nitrogen oxides (NOx/NO2)	M	OTH	Horiba PG250	205.33	205.33	0.0	0.0	
11	Sulphur oxides (SOx/SO2)	M	OTH	Horiba PG250	285.92	285.92	0.0	0.0	

ADD NEW ROW DELETE ROW \* \* 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									
POLLUTANT		METHOD			Please enter all quantities in this section in KGs				
No. Annex II	Name	M/C/E	Method Used		ADD EMISSION POINT	QUANTITY			
			Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
35	Dichloromethane (DCM)	M	OTH	EN12619. Measure of total hydrocarbons. Result will be <amount shown	3.17	3.17	0.0	0.0	
52	Tetrachloroethylene (PER)	M	OTH	EN12619. Measure of total hydrocarbons. Result will be <amount shown	3.17	3.17	0.0	0.0	
60	Vinyl chloride	M	OTH	EN12619. Measure of total hydrocarbons. Result will be <amount shown	3.17	3.17	0.0	0.0	
84	Fluorine and inorganic compounds (as HF)	M	OTH	EN12619. Measure of total hydrocarbons. Result will be <amount shown	8.34	8.34	0.0	0.0	

ADD NEW ROW DELETE ROW \* \* 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									
POLLUTANT		METHOD			Please enter all quantities in this section in KGs				
Pollutant No.	Name	M/C/E	Method Used		ADD EMISSION POINT	QUANTITY			
			Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
230	TA Luft organic substances class 1	M	OTH	EN13649	7.1	7.1	0.0	0.0	
319	Inorganic acids	M	OTH	HCl. Impinger with DI water. ISEN1911:2010	2.7	2.7	0.0	0.0	

ADD NEW ROW DELETE ROW \* \* 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: Please enter summary data on the quantities of methane flared and / or utilised	Inagh				
	T (Total) kg/Year	M/C/E	Method Used		Facility Total Capacity m3 per hour
Total estimated methane generation (as per site model)	934287.0	C	OTH	Gassim model	N/A
Methane flared	922410.0	M	OTH	Online analyser	750.0 (Total Flaring Capacity)
Methane utilised in engine/s	0.0				0.0 (Total Utilising Capacity)
Net methane emission (as reported in Section A above)	11877.0	C	OTH	Calculated. D41-D42	N/A





5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

[PRTR#: W0109 | Facility Name : Inagh | Filename : w0109\_2013(1).xls | Return Year : 2013 ]

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Please enter all quantities on this sheet in Tonnes

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Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
Within the Country	13 02 08	Yes	3.15	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	15 01 01	No	35.0	paper and cardboard packaging	R3	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01	Cree,Kilrush,County Clare,,Ireland		
Within the Country	20 01 01	No	70.0	paper and cardboard	R3	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01	Cree,Kilrush,County Clare,,Ireland		
Within the Country	15 01 02	No	22.0	plastic packaging	R3	M	Weighed	Offsite in Ireland	Mr Binman,W0061-03	Luddenmore,Grange,Kilmallock,County Limerick,Ireland		
Within the Country	15 01 04	No	10.8	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	1.8	metallic packaging, aluminium cans	R4	M	Weighed	Offsite in Ireland	Mr Binman,W0061-03	Luddenmore,Grange,Kilmallock,County Limerick,Ireland		
Within the Country	15 01 05	No	2.2	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	15 01 07	No	35.0	glass packaging	R5	M	Weighed	Offsite in Ireland	Mr Binman,W0061-03	Luddenmore,Grange,Kilmallock,County Limerick,Ireland		
Within the Country	16 01 07	Yes	2.48	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
To Other Countries	16 06 01	Yes	0.93	lead batteries	R4	M	Weighed	Abroad	Enva,W0184-01	Clonminan Industrial Estate,Portlaoise,County Laoise,,Ireland	Enva,W0184-01	Clonminan Industrial Estate,Portlaoise,County Laoise,,Ireland
To Other Countries	16 06 04	No	1.163	alkaline batteries (except 16 06 03)	R4	M	Weighed	Abroad	Electrical Waste Management,WFP DS-09001201	Drive,Greenogue Industrial Estate,Rathcoole,County Dublin,Ireland	Recypilas,,,,,Bilbao,,Spain	,,,,,Bilbao,,Spain
Within the Country	20 03 07	No	19.08	bulky waste	R4	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01	Cree,Kilrush,County Clare,,Ireland		
Within the Country	20 03 01	No	976.0	mixed municipal waste landfill leachate other than those mentioned	D1	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01	Clare,,Ireland		
Within the Country	19 07 03	No	7302.1	in 19 07 02 landfill leachate other than those mentioned	D8	M	Weighed	Offsite in Ireland	Lisdoonvarna Wastewater Treatment plant ,D0077-01	Knocknagulla,Lisdoonvarna,County Clare,D,Ireland		
Within the Country	19 07 03	No	2350.3	in 19 07 02 landfill leachate other than those mentioned	D8	M	Weighed	Offsite in Ireland	Sixmilebridge WWTP,D0076-01	Sixmilebridge ,County Clare,,Ireland		

Within the Country	20 01 40	No	97.24 metals	R3	M	Weighted	Offsite in Ireland	Hegarty Metals, WFP/LK/2008/07C Tullagower Quarries	Ballysimon Road,Limerick,,Ireland Tullagower,Kilrush,County Clare,,Ireland
Within the Country	20 01 02	No	18.08 glass	R5	M	Weighted	Offsite in Ireland	Ltd,004/08/WPT/CL Alltex Recyclers Limited 1 Ballycreagh Road Cloughmills Ballymena	1 Ballycreagh Rd ,Cloughmills,Ballymena,BT4 4 9LB,United Kingdom
To Other Countries	20 01 11	No	9.26 textiles	R3	M	Weighted	Abroad	BT44 9LB. Licence WMEX 04/12,WMEX 04/12	The Recycling Village,,Unit 21,Duleek Business Park,Commons,Duleek Meath,Ireland
Within the Country	20 01 21	Yes	0.26 fluorescent tubes and other mercury- containing waste	R4	M	Weighted	Offsite in Ireland	KMK Metals,W0113/03	Dangan Road,Tullamore,County Offaly,,Ireland European Metal Recycling Ltd,,Bentley Road South,Darlaston,WS10 8LW,West Midlands,United Kingdom
To Other Countries	20 01 23	Yes	11.331 discarded equipment containing chlorofluorocarbons	R4	M	Weighted	Abroad	Electrical Waste Management,WFP DS- 09001201	Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,County Dublin,Ireland Rathmooney,Lusk,County Dublin,,Ireland
Within the Country	20 01 25	No	0.22 edible oil and fat	R9	M	Weighted	Offsite in Ireland	Agripure,,	Clonminan Industrial Estate,Portlaoise,County Laoise,,Ireland
Within the Country	20 01 28	No	19.979 paint, inks, adhesives and resins other than those mentioned in 20 01 27	R1	M	Weighted	Offsite in Ireland	Erva,W0184-01 The Recycling Village,,Unit 21,Duleek Business Park,Commons,Duleek	Meath,Ireland
Within the Country	20 01 35	Yes	26.69 discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components	R4	M	Weighted	Offsite in Ireland	Meath,Ireland	Meath,Ireland
To Other Countries	20 01 36	No	53.4 discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	R4	M	Weighted	Abroad	Electrical Waste Management,WFP DS- 09001201	Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,County Dublin,Ireland Cree,Kilrush,County Clare,,Ireland
Within the Country	20 01 38	No	122.56 wood other than that mentioned in 20 01 37	R3	M	Weighted	Offsite in Ireland	Clean Ireland,W0253-01	Clare,,Ireland
Within the Country	20 01 39	No	44.96 plastics	R3	M	Weighted	Offsite in Ireland	Mr Binman,W0061-03	Luddenmore,Grange,Kilmall ock,County Limerick,Ireland
Within the Country	20 01 40	No	0.0 CANT DELETE ROW	R4	M	Weighted	Offsite in Ireland	..	..,Ireland
<b>Within the Country</b>	<b>20 03 01</b>	<b>No</b>	0.0 CANT DELETE ROW	R4	M	Weighted	Offsite in Ireland	..	..,Ireland
Within the Country	20 03 07	No	0.0 can't delete row	R4	M	Weighted	Offsite in Ireland	..	..,Ireland

