



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**

**2014**

*Prepared by: Transportation, Environment, Water and Emergency Services 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> 2014.

### **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 and brought to their facility for further processing for offsite landfill and/or diversion to waste-to-energy facilities.

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 2,825t of domestic green waste from landfill between 2006 and the end of 2014. 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 (see Section 3.2).

### **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 956 tonnes of

residual waste was accepted from householders in 2014, inclusive of mattresses and other 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 2,875 tonnes of green waste has been recovered to date. The compost product is used mainly as a soil conditioner within the site.

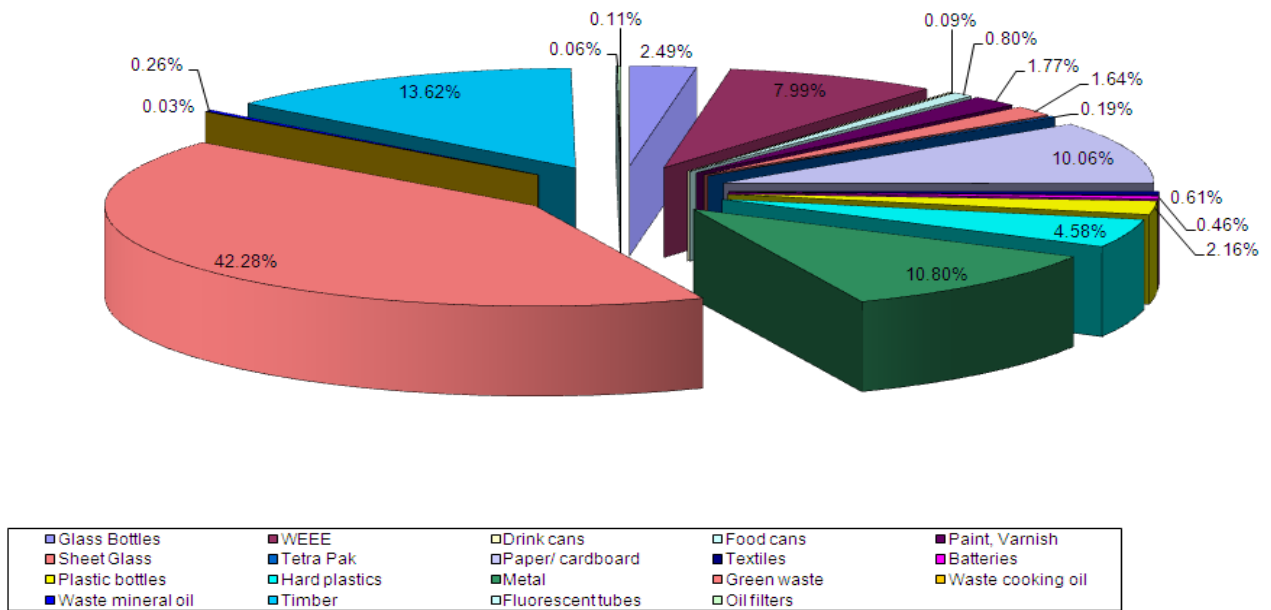
Hard plastics have been accepted at the facility for recovery since mid 2008.

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 2014**

Material	Quantity	Material	Quantity	Material	Quantity
Glass Bottles	28	Textiles	6.9	Waste mineral oil	2.9
WEEE	90	Batteries (all)	7.16	Timber	153
Food cans	9	Plastic bottles	24.2	Fluorescent tubes	0.7
Beverage cans	1	Hard plastics	51.5	Oil filters	1.3
Sheet Glass	18	Metal	121.3	Paint, Varnish	19.9
Tetra Pak	2.1	Green waste	475	<b>Total (tonnes)</b>	<b>1123.3</b>
Paper/ cardboard	113	Waste cooking oil	0.4		

**Figure 3.1: Quantity of Household Material Recycled/Recovered during 2014 (percentage by weight)**

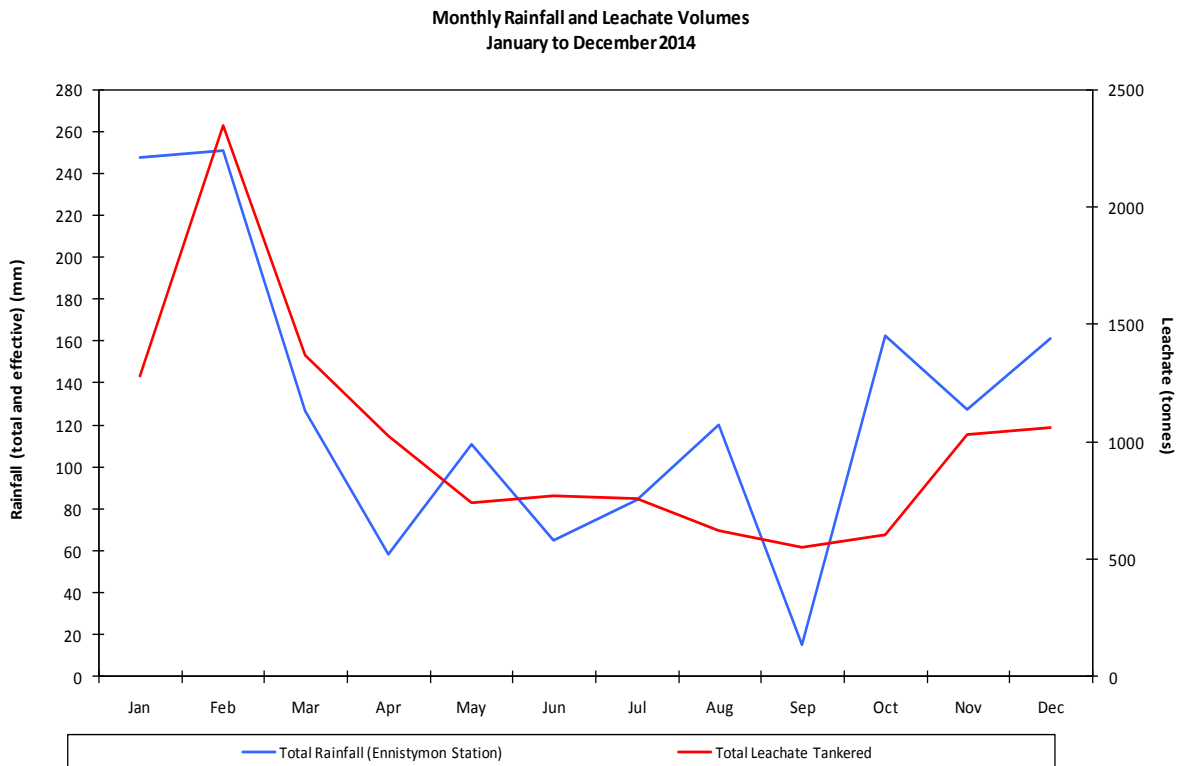


### 3.4 Leachate Quantities/Water Mass Balance.

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 for 2014 was Martin Ryan Transport.

A total of 12,203 tonnes of leachate was transported off site during 2014. 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: Monthly Rainfall and Leachate Levels, 2014:**



The volume of leachate tankered each month provides a rough estimate of volume of leachate generated. In 2014, as the graph shows, unusually heavy rainfall occurred between January and mid March. Volumes tankered had been reduced slightly in December 2013 due in part to the holiday season and also to restrictions imposed by the WWTP's at that time. As a result of the reduction in transport for December 2013, cell levels increased significantly at the start of 2014. A total of 127 loads (3640 tonnes) had to be tankered from the site between January and February 2014. Cell leachate levels also rose above the 1m licence limit during January 2014. Incident reports were submitted for these exceedences.

Annual leachate and rainfall volumes from 2003 to 2014 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 were proposed for 2014 but have not yet been implemented due to possible future relocation of some of the lower levels skips.

Fig: 3.3: Annual Leachate Tonnages  
(2003 to 2014)

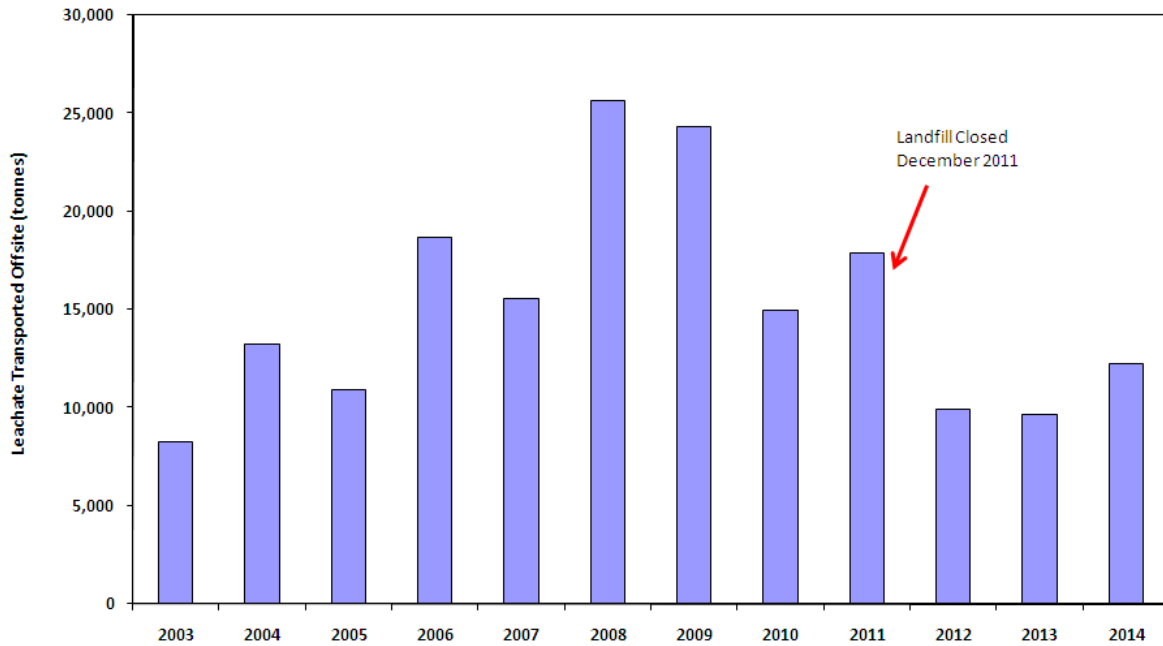
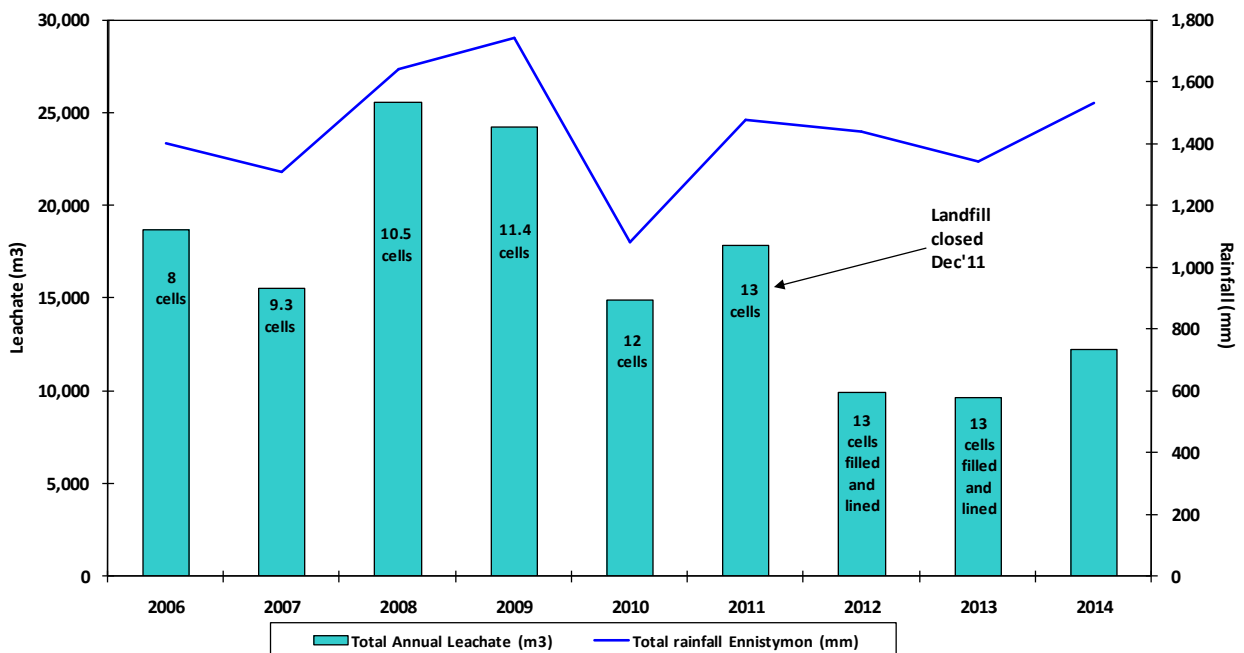


Figure 3.4: Summary of Annual Leachate and Rainfall Volumes, 2006 to 2014  
(No. of cells filled or part-filled by end of each year is also shown on graph)



A monthly water balance calculation for the site is attached in Appendix 8.2. This calculation resulted in a theoretical leachate volume of 11,179m<sup>3</sup> (tonnes) for 2014 based on a total rainfall figure of 1,533m<sup>3</sup> from Ennistymon Rainfall Station (effective rainfall estimated at 957mm using Shannon PE data). The actual leachate volume tankered offsite in 2014 was 12,203 tonnes, which is 9% over the estimate. This increase is most likely due to reduced leachate movements during December **2013**, with a resultant build up in the cells, combined with the excessive rainfall levels of January and February 2014. The water balance calculation assumes an infiltration rate of 10% over capped areas.



### 3.5 Landfill Gas Management, January to December 2014

During 2014, a total of 568,648kg 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 2014 are outlined below:

**TABLE 2.2: RECORDED DIESEL CONSUMPTION IN 2014**

<b>Plant/Machinery</b>	<b>Unit</b>	<b>Quantity</b>
Generator + pumps	litres	0
JCB	litres	1,193
Tractors	litres	2,132
CCC Site Vehicle (Toyota Pick-up)	litres	634
Total amount of Diesel Consumed:	litres	3,959

Diesel consumption figures are based on Council machinery yard records.

Electricity consumption was 130,000kWh (est) for the reporting period January to December 2014.

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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 2014. 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. Biannual monitoring of flare stack emissions was carried out by Air Scientific 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 wells was carried out on a monthly basis throughout the year, except where gas quality issues indicated that additional checks were required. Perimeter gas wells were monitored on a weekly basis throughout the year. 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)	25 <sup>th</sup> June 2014	24 <sup>th</sup> September 2014	Emission Limit <sup>1</sup>
Nitrogen Oxides (NO <sub>x</sub> ) as NO <sub>2</sub> (mg/Nm <sup>3</sup> )	76.68	62.06	150 mg/m <sup>3</sup> for Flare Stacks
Carbon Monoxide (CO) (mg/Nm <sup>3</sup> )	0.22	4.30	50 mg/m <sup>3</sup> for Flare Stacks
Sulphur Dioxide (SO <sub>2</sub> ) (mg/Nm <sup>3</sup> )	51.97	526.23	-
Temperature (°K)	1308	1301	>1,273
Vinyl Chloride (mg/Nm <sup>3</sup> )	<2.82	-	-
Flow Rate (from flare data)	315	324	
Acetonitrile (mg/Nm <sup>3</sup> )	<2.82	-	-
Dichloromethane (mg/Nm <sup>3</sup> )	<2.82	-	-
Tetrachloroethylene (mg/Nm <sup>3</sup> )	<2.82	-	-
TA Luft Class I (mg/Nm <sup>3</sup> )	<0.45	-	20 mg/m <sup>3</sup> (at mass flows >0.1kg/hr)
TA Luft Class II (mg/Nm <sup>3</sup> )	<0.45	-	100 mg/m <sup>3</sup> (at mass flows >2 kg/hr)
TA Luft Class III (mg/Nm <sup>3</sup> )	<0.45	-	150 mg/m <sup>3</sup> (at mass flows >3 kg/hr)
HCl (mg/Nm <sup>3</sup> )	0.91	-	50 mg/m <sup>3</sup> (at mass flows >0.3kg/hr)
HF (mg/Nm <sup>3</sup> )	0.34	-	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)
	16 <sup>th</sup> May to 13 <sup>th</sup> June 2014	15 <sup>th</sup> July to 15 <sup>th</sup> August 2014	15 <sup>th</sup> September to 14 <sup>th</sup> October 2014	
ST1	79	217	86.4	350
ST2	91	543 (bird waste)	74.1	350
ST6	115	236	44.4	350
ST7	12	140	278.7	350

As can be seen from table 4.3, all results were below the licence limit of 350mg/m<sup>2</sup>/day with the exception of the result for ST6 in July/August 2014. The monitoring consultancy considered that this result was due to contamination with bird waste. There were no site works taking place during the monitoring period and no major sources of potential airborne dust observed.

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:	5 <sup>th</sup> to 6 <sup>th</sup> November 2014			
24 hour average PM <sub>10</sub> , ug/m <sup>3</sup>	16.2	28.1	24.1	31.9

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 NS4, NS5 and NS6 were in compliance with the 55dB(A) daytime limit. Noise levels at NS1, NS2 and NS3 were above licence limits. The elevated noise levels at NS1, NS2 and NS3 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	May 16 <sup>th</sup> 2014			July 10 <sup>th</sup> 2014		
	L <sub>Aeq</sub> , 30min dB(A)	L <sub>A90</sub> , 30min dB(A)	L <sub>A10</sub> , 30min 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	60	49.3	64.2	58.5	44.1	57.1
NS2	58.6	52.1	61.6	58.8	51.5	66.7
NS3	59.6	53.0	61.9	58.2	51.3	66.1
NS4	48.4	48.8	52.1	53.4	43.7	56.9
NS5	50.6	48.6	53.5	43.5	48.1	53.6
NS6	54.1	50.6	57.7	52.0	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.

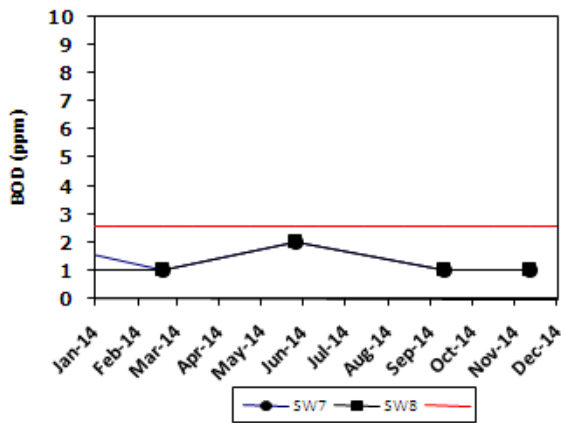
Results for key parameters (ammonia, BOD and total suspended solids) are discussed in this report. Detailed results of all surface water monitoring carried out during the year have previously been submitted to the Agency in separate reports for each quarter.

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).

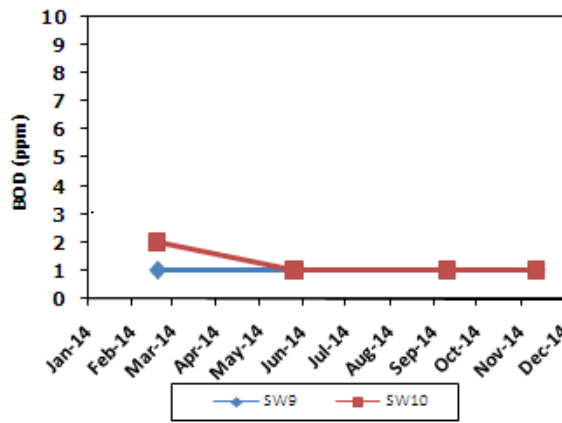
**4.6.1.1. Surface Water BOD:**

BOD results for surface water streams and for the Inagh river are graphed in figures 4.1 to 4.4. 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.

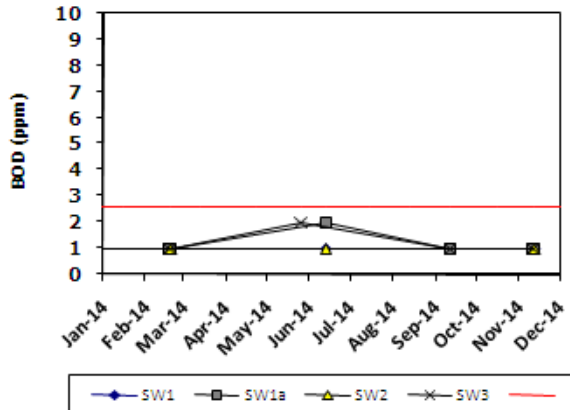
**Figure 4.1: Surface Water BOD Levels Inagh River**



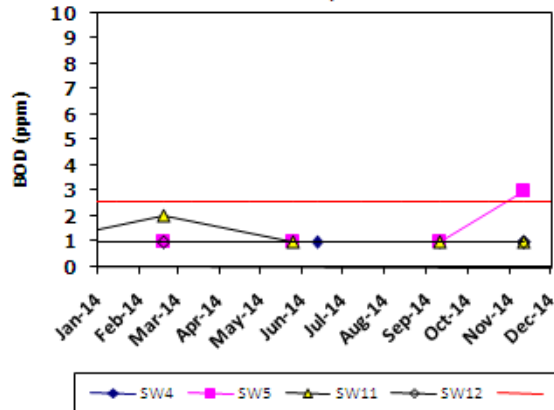
**Figure 4.2: Surface Water BOD Levels Inagh River**



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

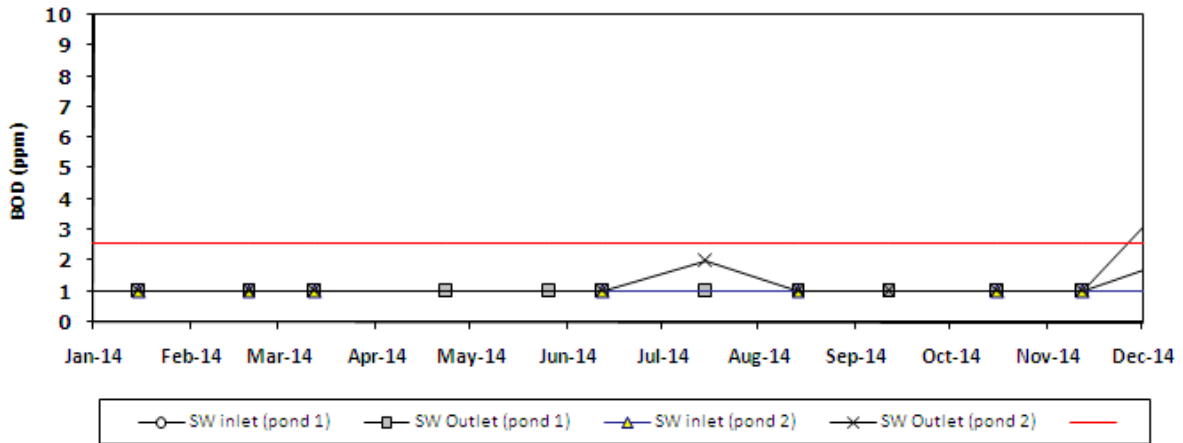


**Figure 4.4: Surface Water BOD Levels Streams 2/3**



As can be seen from the graphs, surface water BOD levels for 2014 were below the EQS in all samples with the exception of an upstream sample on Stream 3 (SW5) in November 2014 (result was 3ppm BOD). 80% of samples were at or below the BOD method detection limit of 1ppm. BOD results for the inlet and outlet to the stormwater ponds are graphed below in Figure 4.5.

Figure 4.5: SW Inlet and Outlet BOD Levels



With the exception of the result for the inlet to Pond 1 in December 2014, all results were below the surface water EQS. The result for the pond inlet sample was 4ppm. The outlet sample from this pond had a BOD result 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

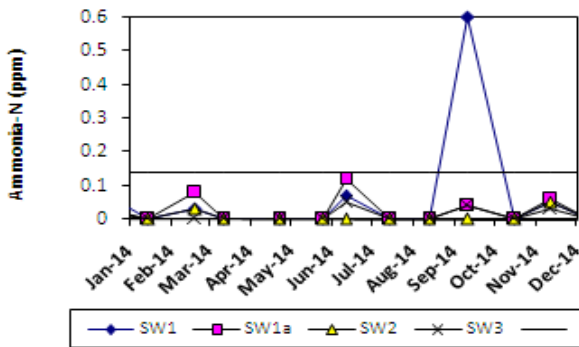


Figure 4.7: Surface Water Ammonia Levels Streams 2/3

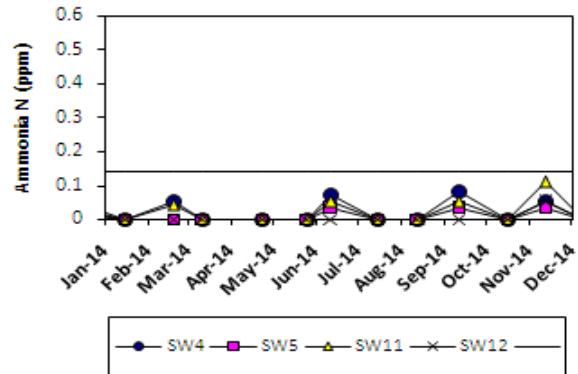


Figure 4.8: Surface Water Ammonia Levels Inagh River, SW7 and SW8

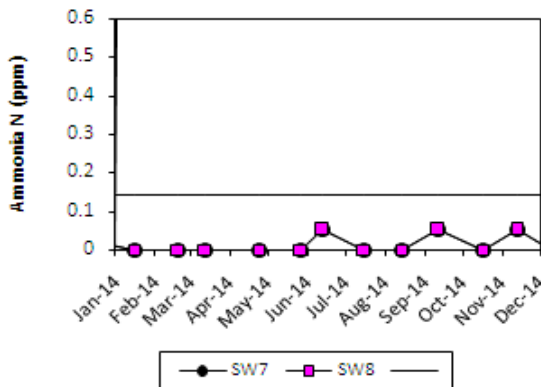
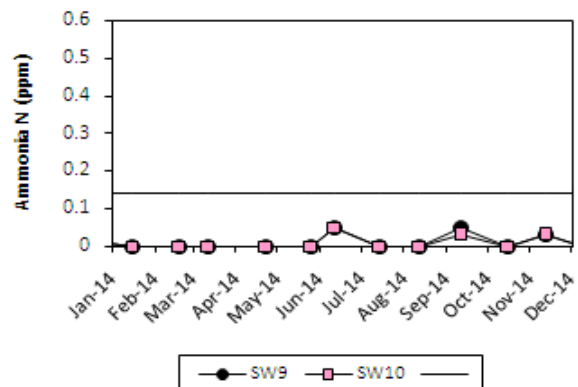


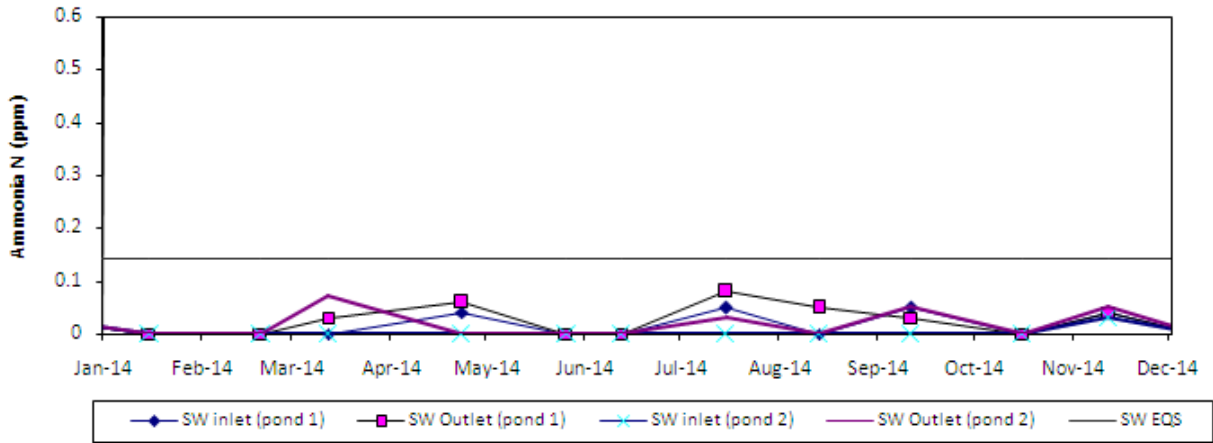
Figure 4.9: Surface Water Ammonia Levels Inagh River, SW9 and SW10



With the exception of one ammonia result of 0.6ppm in September 2014 for SW1, 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:

Figure 4.10: Ammonia results for inlet and outlet samples, Ponds 1 and 2



As can be seen from the graph, all ammonia results for stormwater pond inlet and outlet samples were below the EQS for good status waters on all occasions sampled 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 2014 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.

Figure 4.11: Surface Water Suspended Solids Levels Inagh River, SW7 and SW8

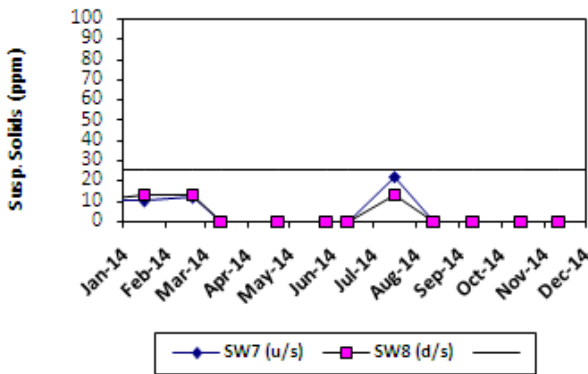
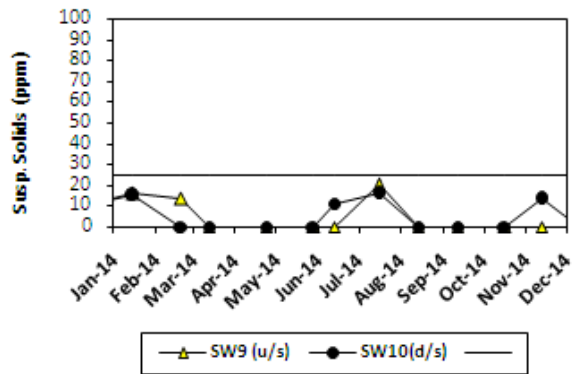


Figure 4.12: Surface Water Suspended Solids Levels Inagh River, SW9 and SW10



Inagh River suspended solids levels were below the 25ppm Salmonid limit for all samples taken during the year. Suspended solids results for streams 1, 2 and 3 are shown in figures 4.13 and 4.14 below.

Figure 4.13: Surface Water Suspended Solids Levels Stream 1

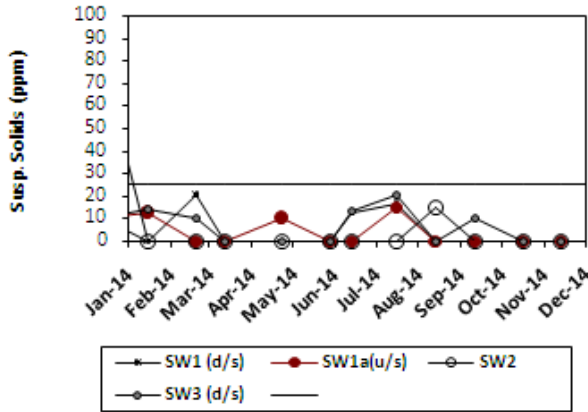
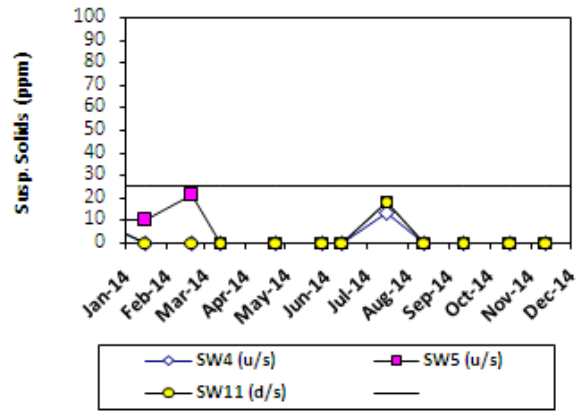


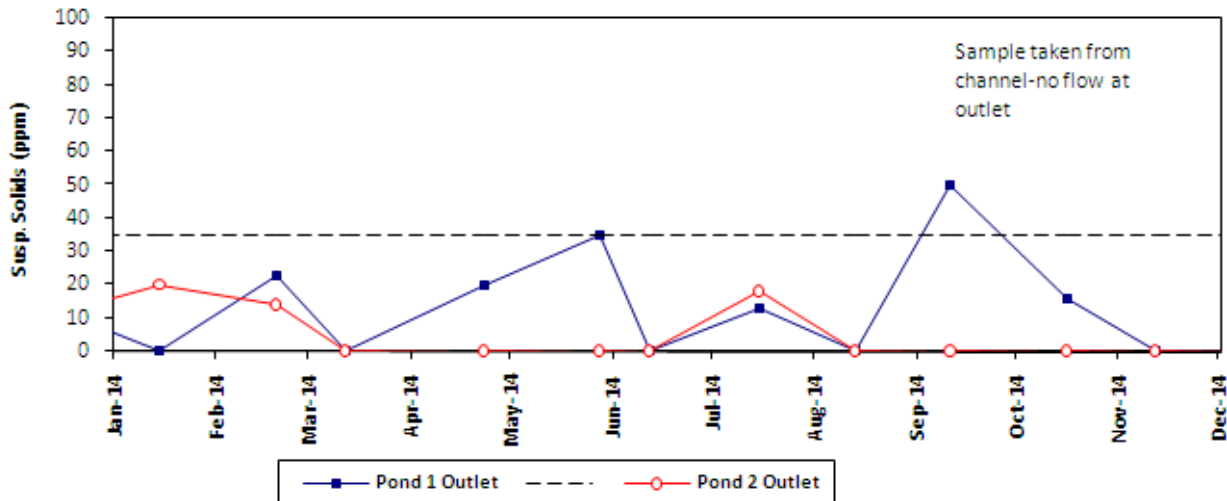
Figure 4.14: Surface Water Suspended Solids Levels Streams 2 and 3



As can be seen from figure 4.13, suspended solids levels were within the 25ppm limit for Salmonid waters on all occasions sampled during the year.

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.

Figure 4.15: Stormwater Pond Outlet Suspended Solids Levels



All results were within the 35ppm suspended solids limit throughout the year with the exception of pond 1 in September 2014, which had a measured suspended solids level of 50ppm. However, the sample was taken when there was no discharge; the sample was taken from the base of the pipe and the monitoring consultants reported that the result was not representative of the surface water discharge.

#### 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.

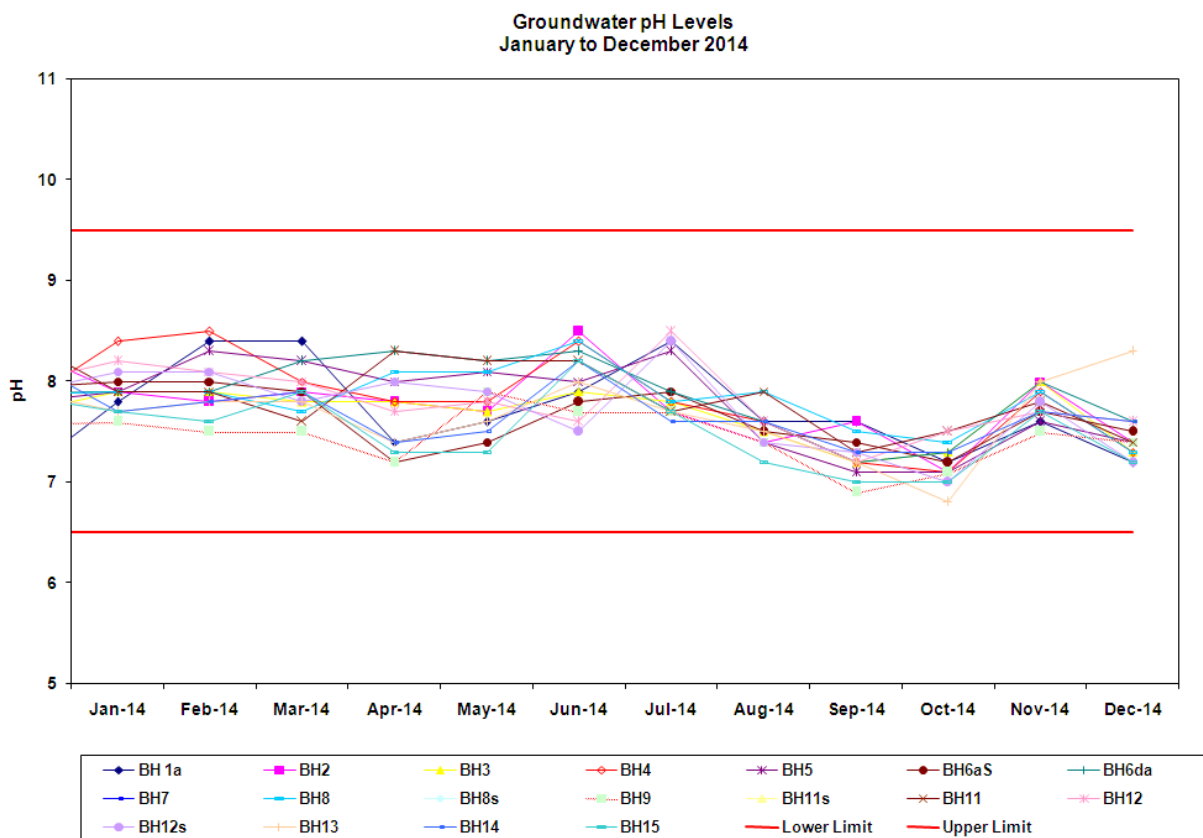


Where relevant limits exist, monitoring results are compared with the threshold levels specified in European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No 9 of 2010), as amended by . The threshold levels given in columns 3 and/or 4 of Schedule 5 are used for comparison. These thresholds are annual arithmetic mean levels. For groundwater metals, fluoride, cyanide and sulphate, only one result is available for 2014 as these parameters are monitored annually.

**4.6.2.1 Groundwater pH:**

Groundwater pH results from January to December 2014 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 the Groundwater Regulations.

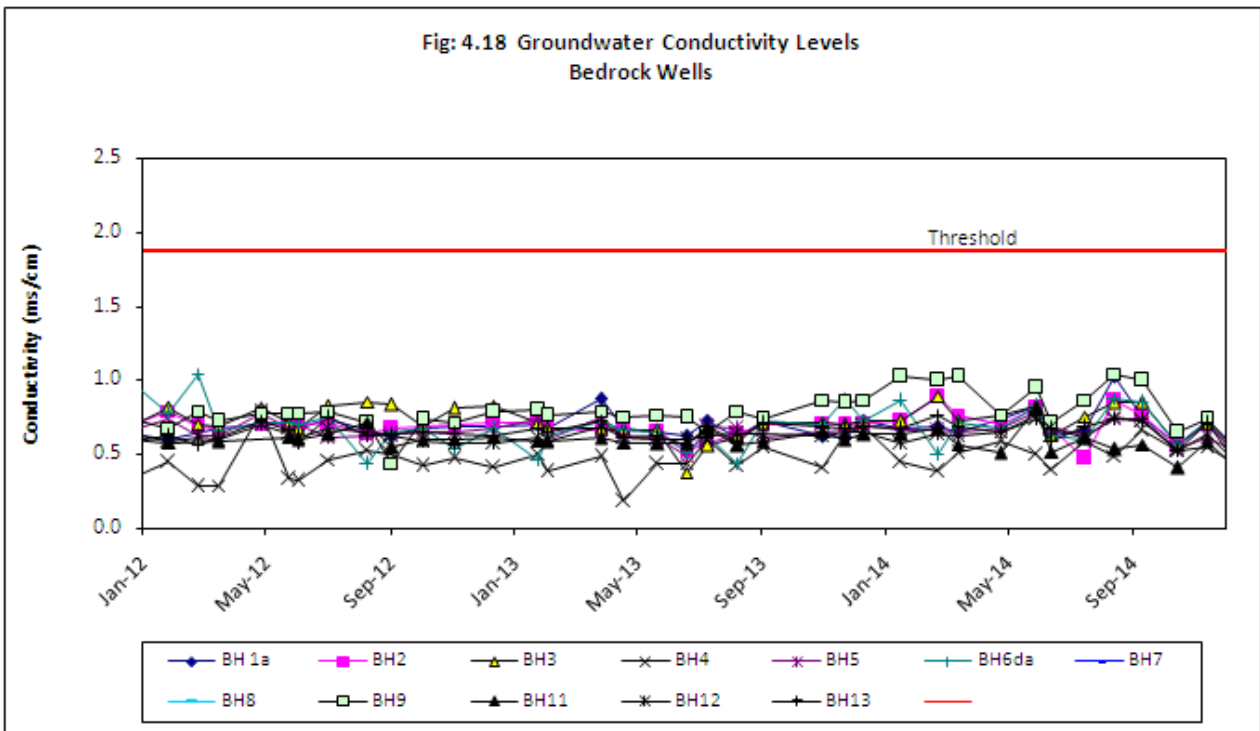
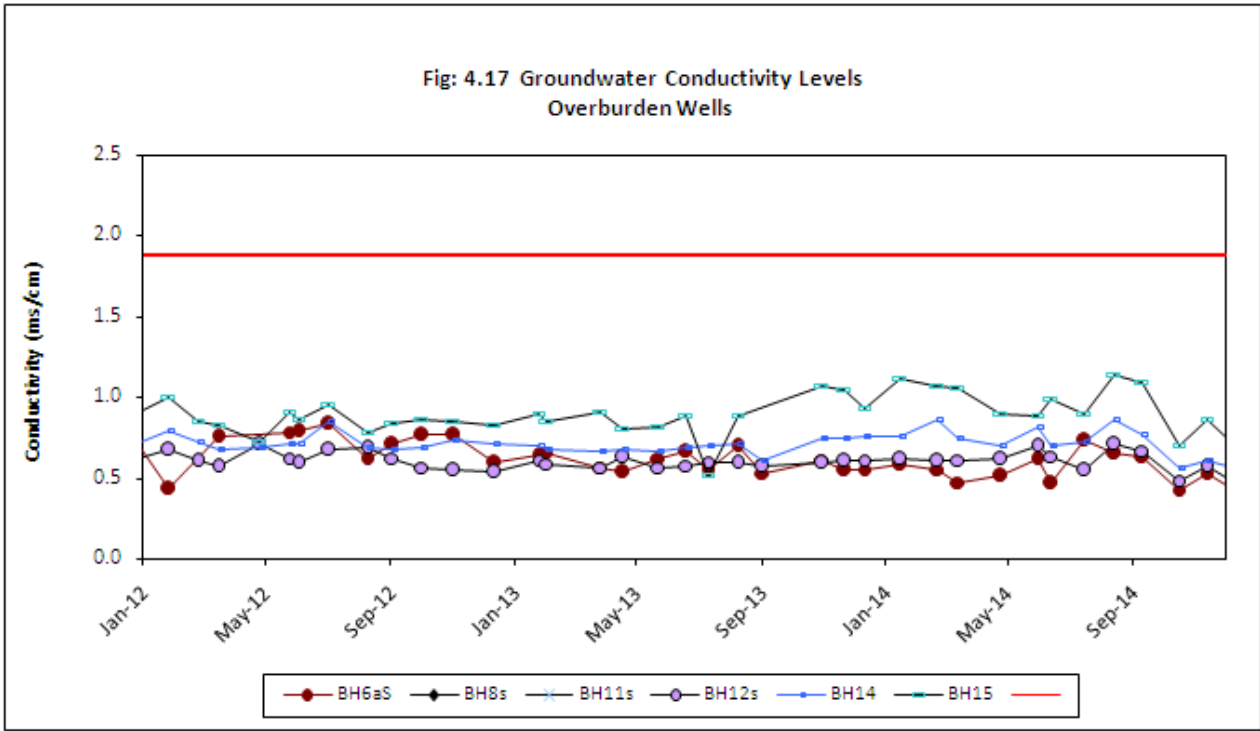
**Figure 4.16**



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

**4.6.2.2. Groundwater Conductivity:**

Groundwater conductivity results for 2008 to 2014 are graphed in figures 4.17 and 4.18. The threshold value of 1,875us/cm (from S.I. 9, 2010, as amended) is shown on the graphs for comparative purposes (in ms/cm).



There have been occasional problems in the past with elevated pH and conductivity levels in the area around BH6 (see previous AER's). However, pH and conductivity levels at all wells were satisfactory for 2014.

#### 4.6.2.3 Groundwater Ammonia

Groundwater ammonia results for 2014 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.

Figure 4.19: Groundwater Ammonia Levels, Bedrock Wells  
January to December 2014

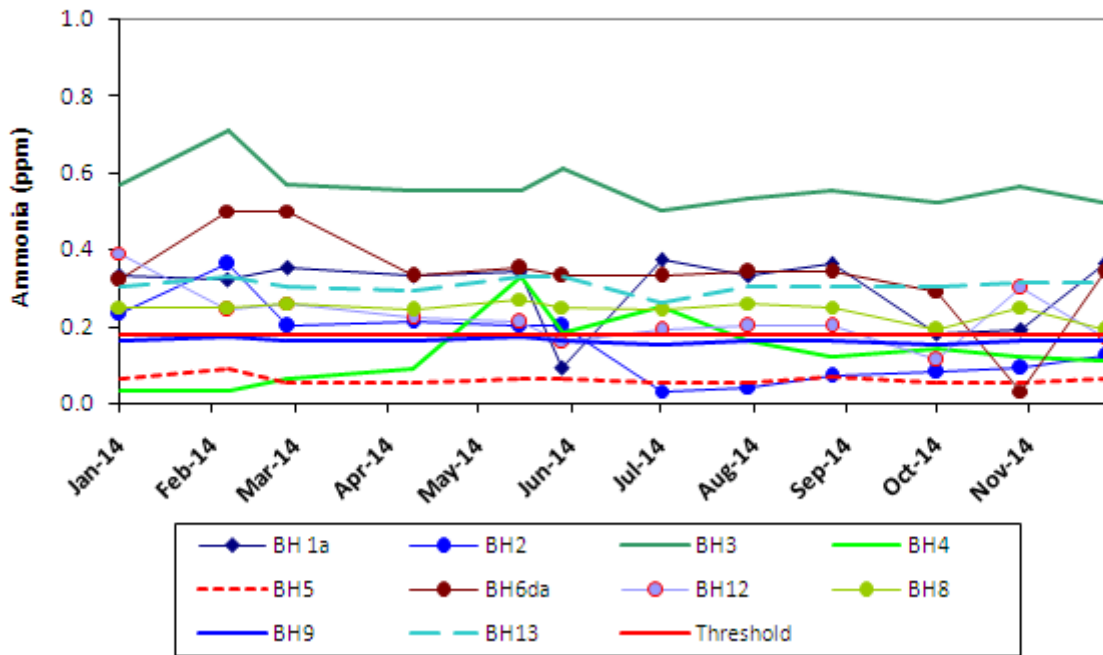
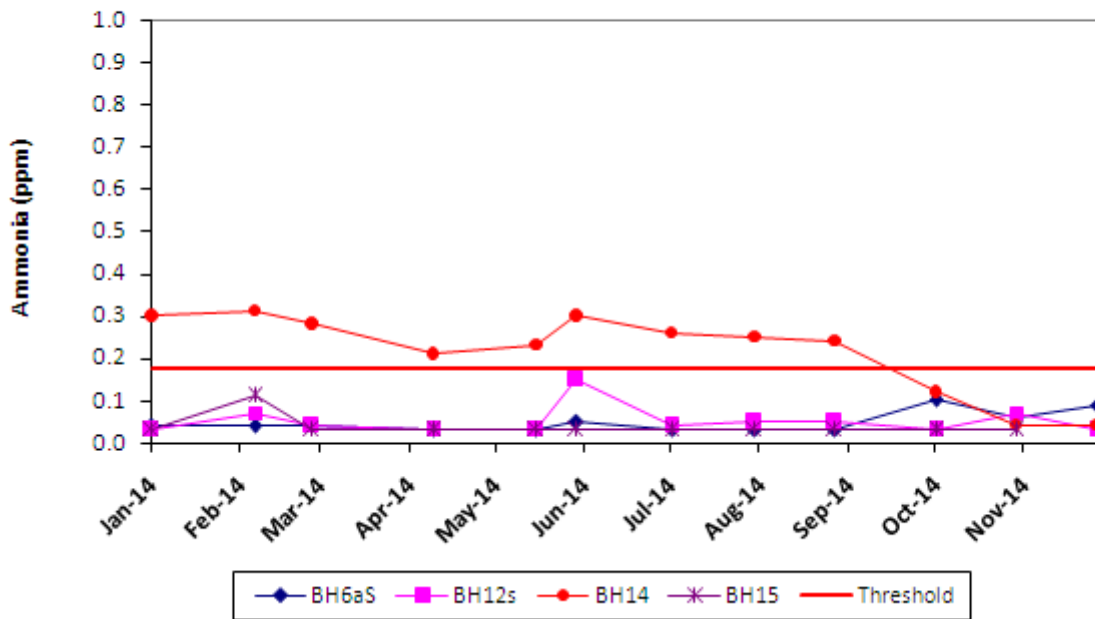


Figure 4.20: Groundwater Ammonia Levels, Overburden Wells  
January to December 2014



As can be seen from the graphs, ammonia results for monitoring wells BH3, BH6D, BH8, BH11, BH13 and BH14 exceeded the groundwater threshold of 0.175ppm (from SI 9, 2010). The threshold was marginally exceeded also at BH2on occasion during the year. 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 with a mean of 0.56ppm for the year.

Mean results for all wells are shown below in tables 4.6 and 4.7.

**Table 4.6: Mean ammonia results in bedrock wells, 2014.**

	BH1A	BH2	BH3	BH4	BH5	BH6D	BH8	BH9	BH11	BH12D	BH13
<b>Ammonia-N (ppm)</b>	<b>0.04</b>	<b>0.17</b>	<b>0.56</b>	<b>0.07</b>	<b>0.05</b>	<b>0.35</b>	<b>0.24</b>	<b>0.16</b>	<b>0.18</b>	<b>0.17</b>	<b>0.32</b>

**Table 4.7: Mean ammonia results in overburden wells, 2014.**

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

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.

Monitoring well BH3, which had highest mean ammonia results in 2014, is furthest from the landfill. Lower ammonia results have been 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 has been assessed under the groundwater risk screening assessment carried out during 2014 under Technical Amendment A of W0109-02. A report of this assessment will be uploaded to the EDEN website shortly.

**4.6.2.4 Groundwater Chloride.**

Groundwater chloride levels from 2010 to 2014 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**

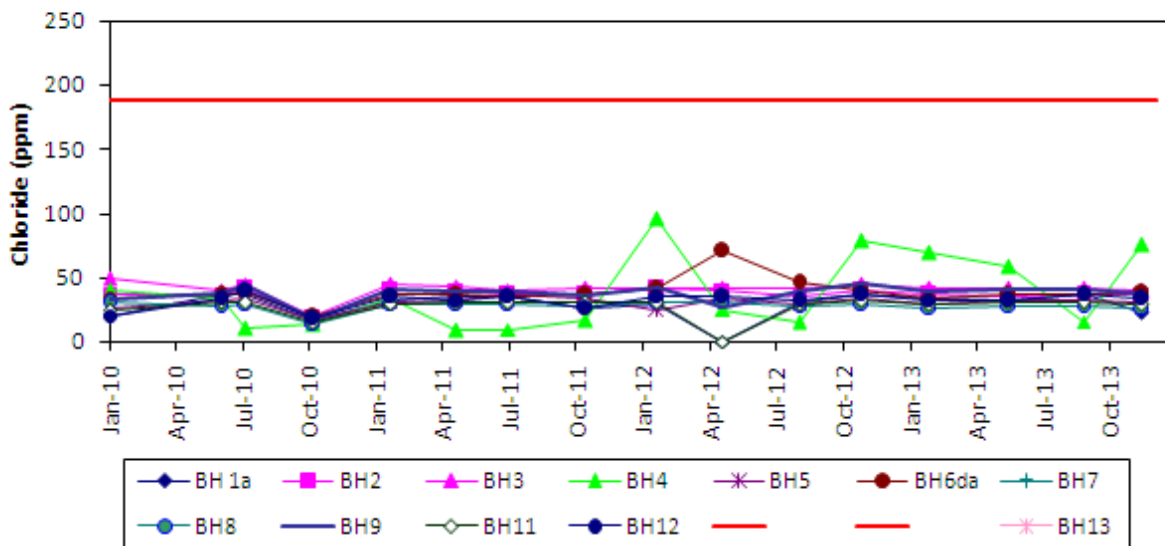
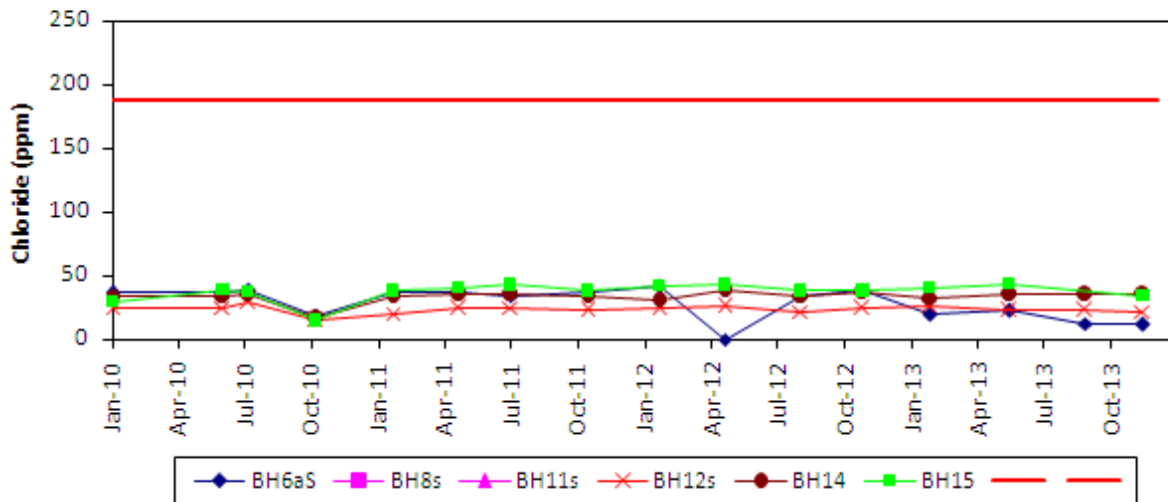


Figure 4.22: Groundwater Chloride Levels Overburden Wells, 2010 to 2013



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

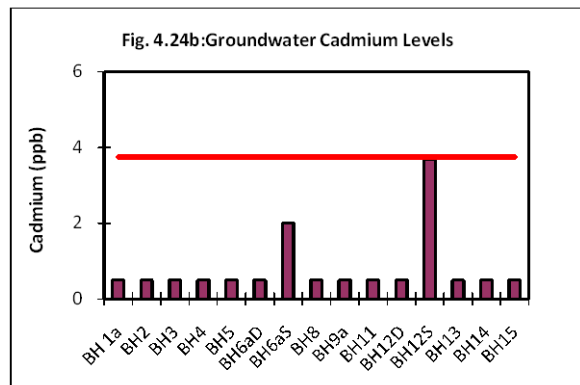
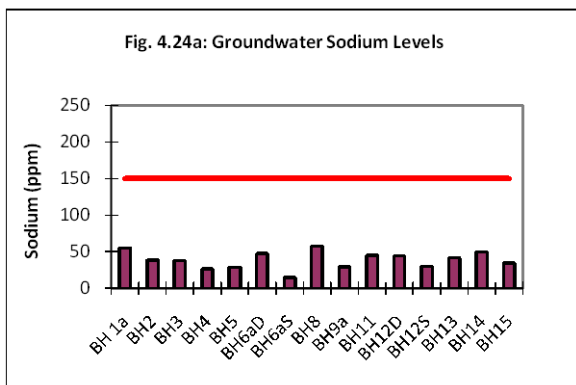
**4.6.2.5 Groundwater volatile and semi-volatile organic compounds**

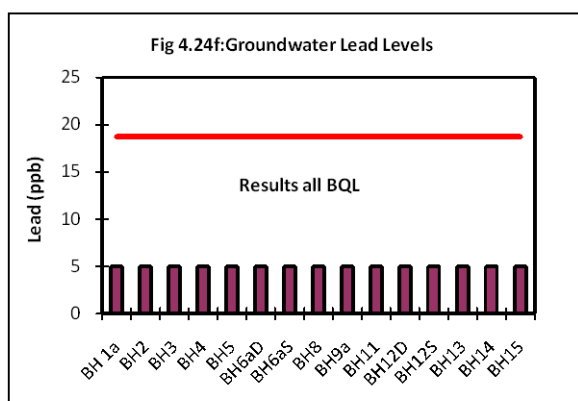
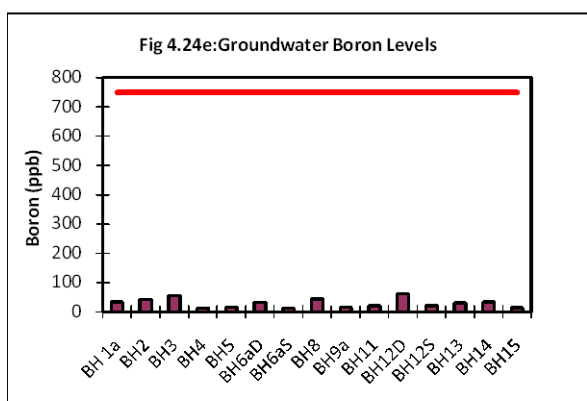
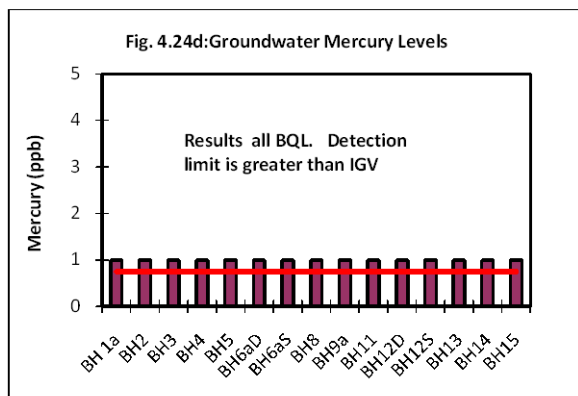
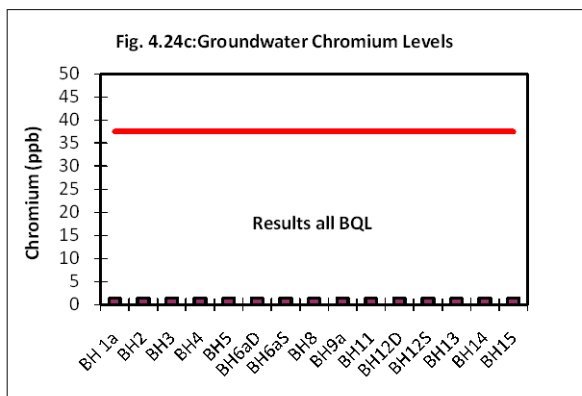
Groundwater samples were analysed for volatile and semi-volatile organic compounds in November 2014. Results were below method detection limits for all samples (i.e. <1ppb).

**4.6.2.6 Groundwater metals levels:**

Groundwater samples were analysed for metals in November 2014. Results are graphed below in figures 4.24a to 4.24f.

Figure 4.24a to 4.24f; Groundwater Metals Levels (2014)





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.

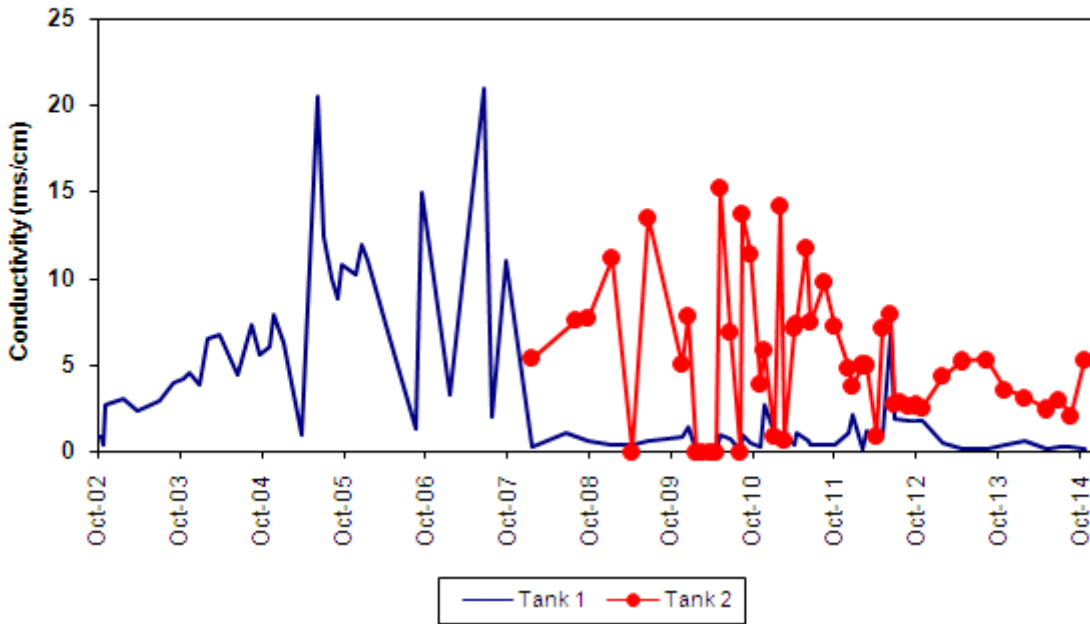
Leachate generated on site is discharged to one of two storage tanks for transport to a designated wastewater treatment facility. An underground storage tank (tank 1) was installed when the facility was initially developed. Up to November 2007, all leachate generated on site was discharged to this tank, 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 4.25. 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 4.25: Leachate Conductivity Levels  
2002 to 2014**



**4.6.3.2 Leachate BOD and COD**

Leachate BOD and COD results for 2014 are graphed below in figures 4.26 and 4.27.

**Figure 4.26: Leachate BOD Levels  
January to December 2014**

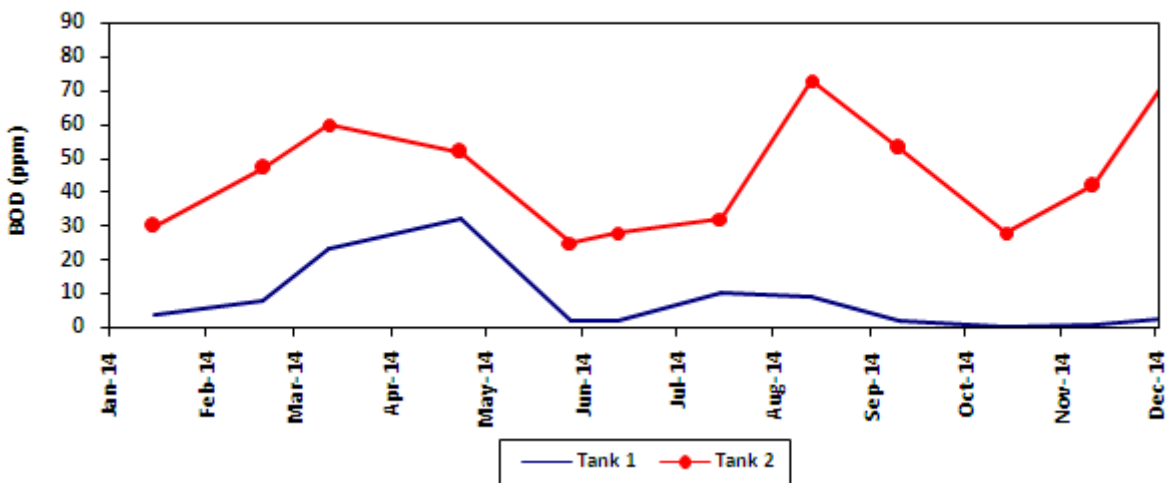
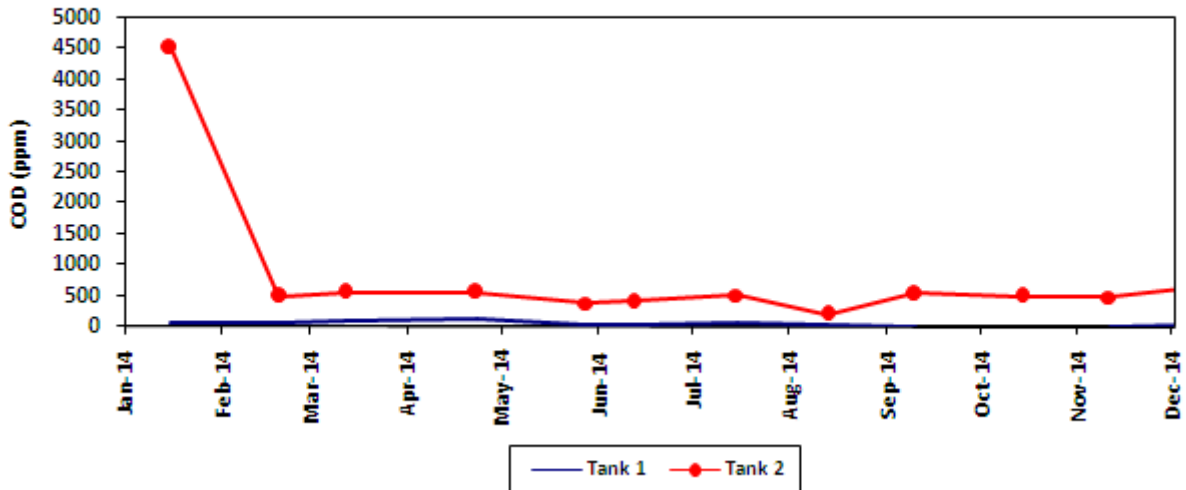


Figure 4.27: Leachate COD Levels  
January to December 2014

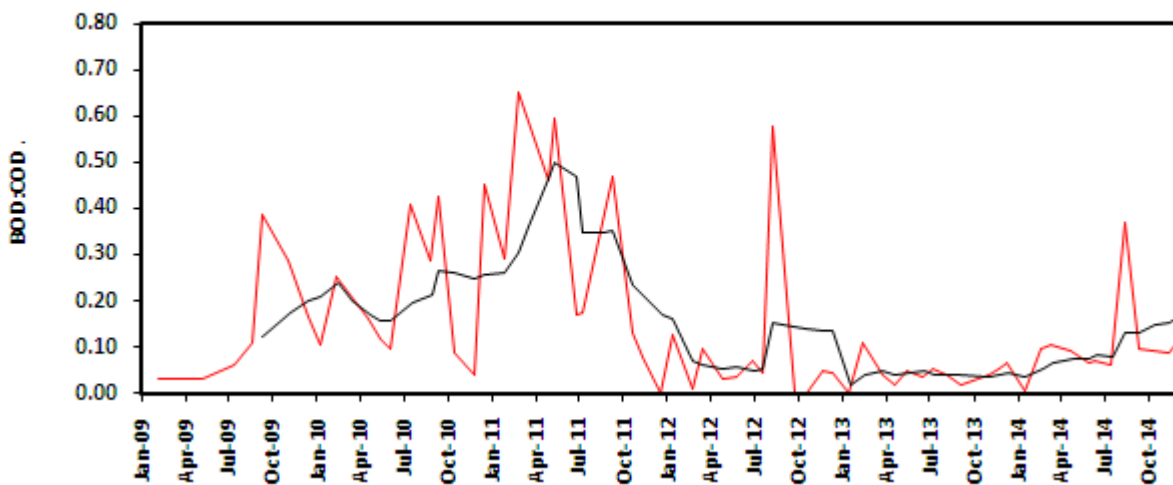


In

Results were as normal for this site, with higher BOD and COD concentrations observed in landfill leachate samples (tank 2) in comparison to the civic amenity site runoff samples (tank 1). The leachate results (tank 2) were as expected for landfill leachate.

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 2014 is graphed below in figure 4.28. The ratio remained below 0.3 throughout the monitoring period. It is possible that the elevated ammonia levels in the leachate contribute to the COD reading whereas a nitrification inhibition step is used to suppress the interference of ammonia in BOD measurement.

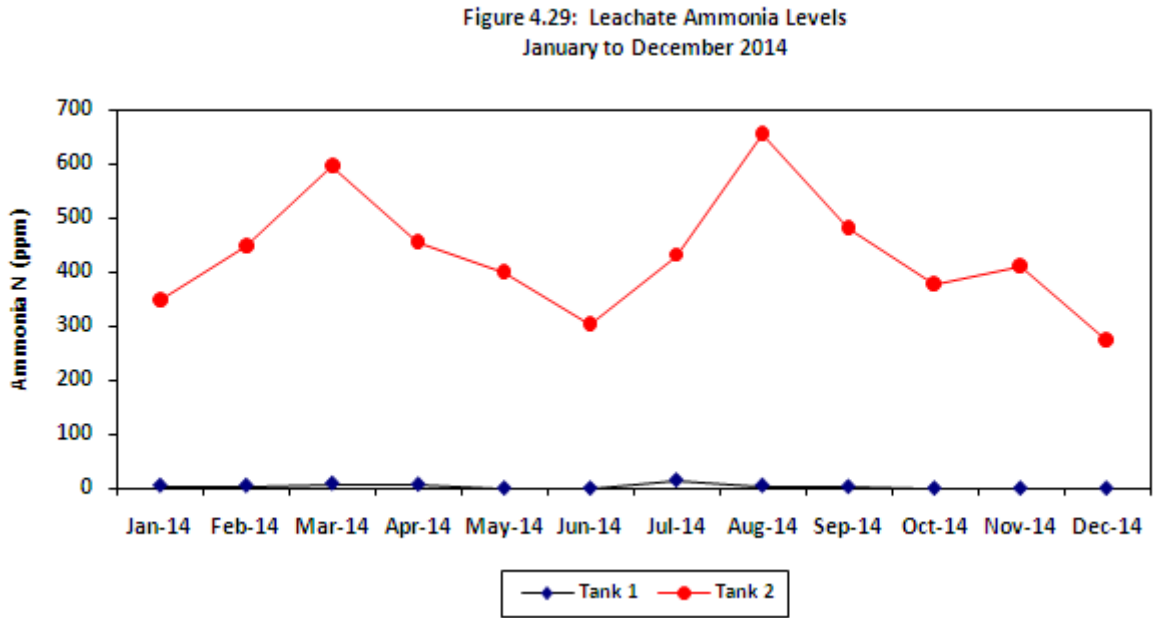
Figure 4.28: Leachate BOD:COD Ratio  
January 2009 to December 2014



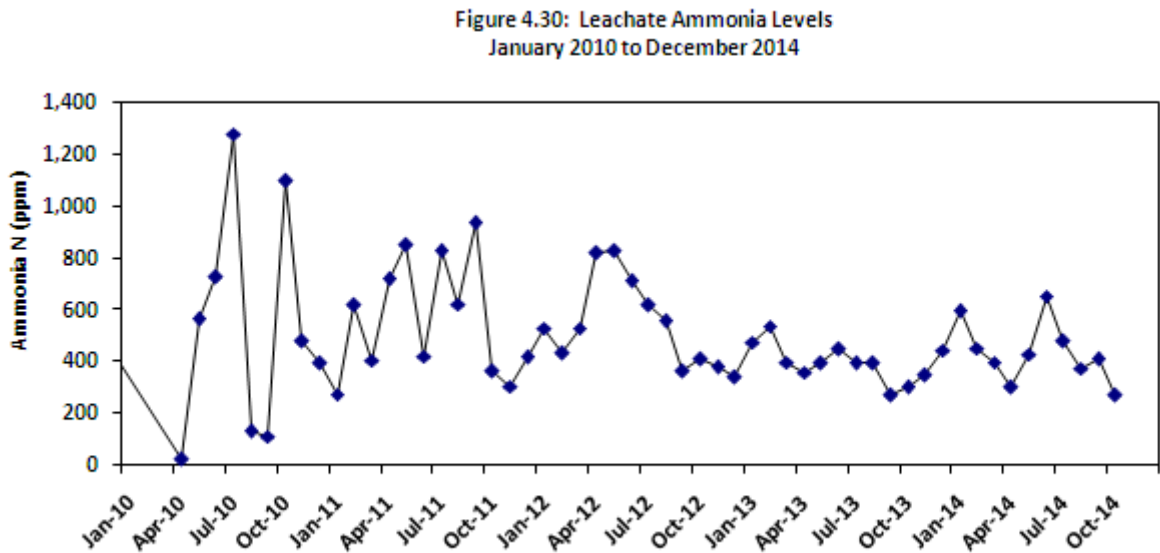


**4.6.3.3 Leachate Ammonia Levels.**

Leachate ammonia results from January to December 2014 are graphed below in figure 4.29. 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 4.41ppm (max: 14.44 ppm). Levels in tank 2 were within the expected range for landfill leachate, with a mean of 431ppm ammonia nitrogen and a maximum result of 655ppm.



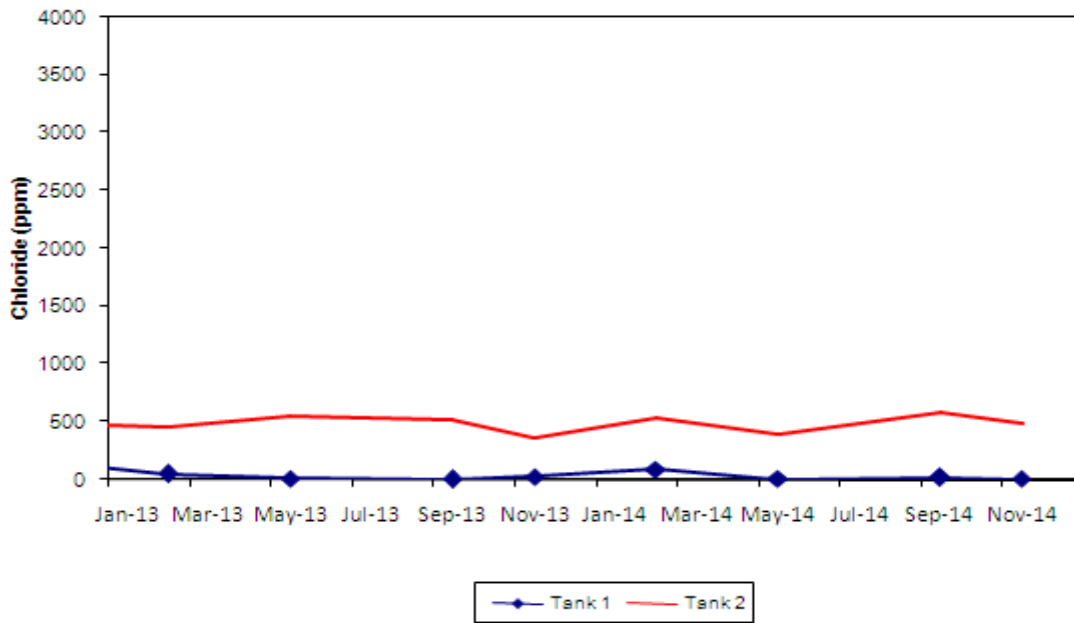
As can be seen from figure 4.30 below, leachate ammonia results have reduced over the past four years, as would be expected as the landfill waste biodegrades over time.



**4.6.3.4 Leachate Chloride Levels**

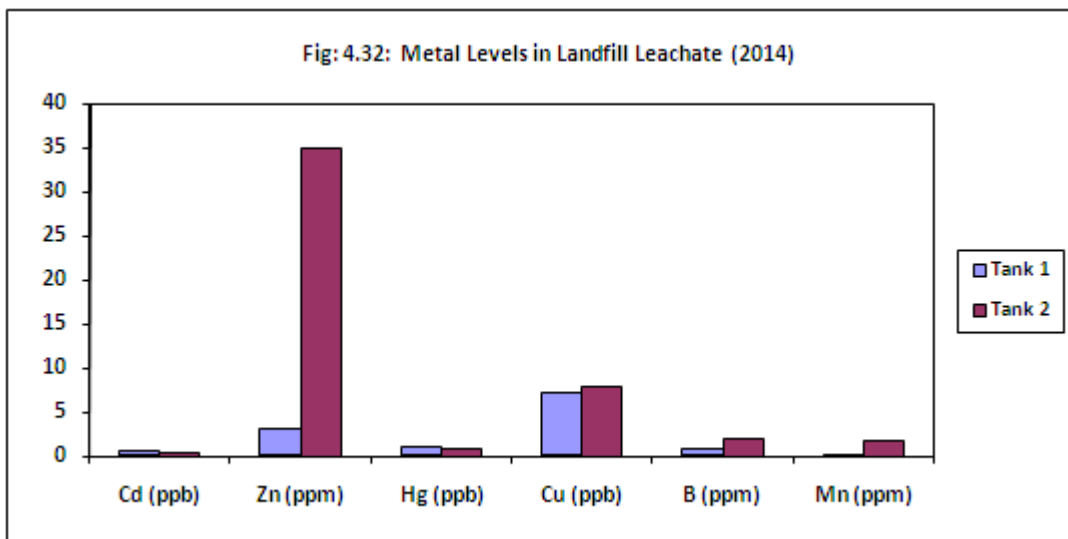
Leachate chloride levels are graphed in figure 4.31 for the period January 2013 to December 2014. Chloride levels in the landfill leachate have reduced in the past few years. The mean for 2014 was 400ppm. Chloride levels in CA site runoff (tank 1) were considerably lower.

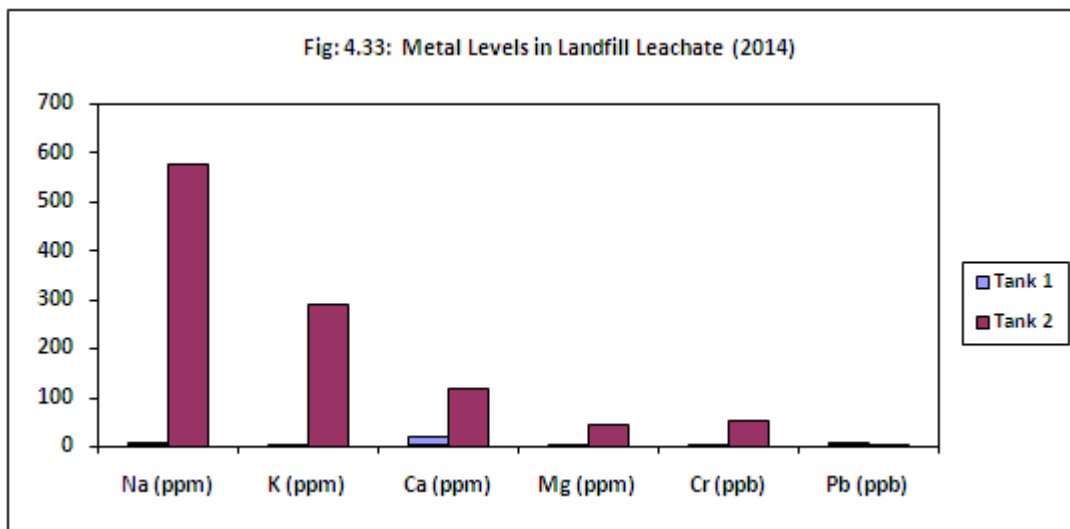
Figure 4.31: Leachate Chloride Levels  
January 2013 to December 2014



#### 4.6.3.5 Leachate Metals Levels

Results for leachate metals are shown below in figures 4.32 and 4.33. 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. As expected, 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.**

##### **4.7.1 Biological Monitoring:**

The Biological Monitoring survey was carried out in July 2014. The report concluded that there is no evidence of an impact from the landfill on surface waters.

##### **4.7.2 Ecological Monitoring:**

Ecological monitoring was not carried out on site during 2014 as Clare County Council requested and received approval to amend the monitoring frequency from annual to three yearly surveys. The next survey is scheduled for 2016.

#### **4.8 EPA Site Visits**

The following is a summary of EPA site visits made during 2014:

- The EPA inspector for the facility carried out a site inspection in November 2014. No non-compliances were received. The site was reported as compliant with licence conditions.
- EPA monitoring personnel were on site in June 2014 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 2014/2015

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### 5.1 Development Works carried out during 2014

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 2014 (NON-EXHAUSTIVE).**

Site Development Works	Completion Date
Development of a forestry management plan for the site	Mid 2014

### 5.2 Proposed Development Works 2015

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 2015**

Description of Works	Date
Investigation of possibilities for further leachate reduction/treatment alternatives.	Ongoing.
Implementation of forestry management within the site	Mid 2015
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 by Clare county Council Design office in late 2014.

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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 2014 is outlined in Table 6.1 below.

**TABLE 6.1: SUMMARY OF FINANCIAL PROVISIONS 2014**

Item	2014 budget
CWMF - Landfill operation	295,033
CWMF - Recycling centre operation	360,866
CWMF - Compost operation	91,724
<b>Total</b>	<b>747,623</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) was changed with the agreement of the committee. Tranche 5 was distributed during 2014 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. For main roads outside the facility boundary, periodic 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 is employed by Clare County Council to control vermin. The company carries out monthly inspections on site and maintains 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. 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 LDPE liner are controlled via outer rings containing wetted bentonite clay. Odour Monitoring Ireland carried out surface VOC profile surveys on the landfill cap on one occasion during 2014, after agreement was received to reduce the assessment frequency to once per annum. No emissions were detected.

No odours were detected during 2014. Up to August 2014, daily odour patrols were carried out on-site and offsite by a member of site staff accompanied by a Council employee based in the environment section in Ennis. The procedure was modified in August 2014, with the approval of the Agency. Daily odour patrols are now carried out within the site only. In the event that odours are detected on site, this will trigger a full off site patrol.

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 2014 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 principal 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 2014. The complaints 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. Three key objectives were identified under the 2014 EMP:

### **7.2.1. Objective 1: Reduce the tonnage of landfill leachate and civic amenity site runoff removed from the facility:**

Leachate generated on site is tankered to wastewater treatment plants at Lisdoonvarna, Sixmilebridge and Limerick Main Drainage plant 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.

It was planned to investigate options for diversion of leachate from the lower civic amenity site area during 2014 but possible changes in future location of skips (on foot of a new tendering process) meant that no action was taken on this objective during 2014. Further investigations will be made in 2015.

### **7.2.2. Objective 2: Investigate feasibility of converting landfill gas to compressed natural gas for use as heat or vehicle fuel**

Clare County Council participated in a research proposal with the Centre for Biofuelling and Bioenergy to investigate the feasibility of a project to convert landfill gas into compressed natural gas. Issues identified and informally communicated to the Council included problems with volume of gas and the presence of contaminants. We are awaiting further developments/formal report on this project. With the closure of the landfill in November 2011, this objective has been shelved for the present.

### **7.2.3. Objective 3: Put in place a forestry management plan for the site**

A forestry management plan is in place since mid-2014. Limited felling/tree thinning is expected to take place later in 2015.

## **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 was reviewed during 2014 and a revised frequency of twice yearly meetings was agreed with the committee.

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

#### **7.4 Management and Staffing Structure**

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

#### **7.5 Environmental Incidents and Complaints**

Condition 3 of the waste licence requires that the licensee shall make written records of environmental incidents. When incidents arise, completed incident reports are 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 2014**

<b>Nature of Incident</b>	<b>Number of Incidents</b>
Cell leachate levels	1
SCADA/Equipment malfunction:	2
Perimeter well gas levels:	12
Flare downtime	1

Condition 3 of W0109-02 requires that the licensee shall make written records of all complaints. No complaints were received during 2014.

#### **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 2,875 tonnes of green waste for composting since 2006. 475 tonnes\* of green waste was received during 2014. 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. Acceptance of food waste from domestic customers was rolled out at the facility in February 2015.

*Note \*: This is an approximate figure as green waste brought directly to the CWMF site by private customers is not weighed.*

#### **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 onsite 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 was last updated in 2005. A draft revised plan has been published for consultation. The Central Waste Management Facility remains compliant with the original 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 (OMP) was reviewed and revised during 2014, with Agency agreement. The most recent plan revision allows for elimination of the requirement for daily offsite odour patrols. These patrols were carried out by a member of site staff accompanied by a member of staff from the Council's environment section. A revised odour patrol regime is now in place, with daily patrols carried out by site staff within the facility boundary. Under the revised OMP, there is provision for offsite patrols to be carried out in the event of problems arising.

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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 2014

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	247.9	231.9	None	0	Cells 1 - 13	0	0	70,000	2,600	0	1,623	645	2,268	454
February	251.2	226.7	None	0	Cells 1 - 13	0	0	70,000	2,600	0	1,587	653	2,240	2,694
March	127.2	91.6	None	0	Cells 1 - 13	0	0	70,000	2,600	0	642	331	972	3,666
April	58.4	-0.5	None	0	Cells 1 - 13	0	0	70,000	2,600	0	0	152	152	3,818
May	111.2	43.4	None	0	Cells 1 - 13	0	0	70,000	2,600	0	304	289	593	4,411
June	65.0	-27.3	None	0	Cells 1 - 13	0	0	70,000	2,600	0	0	169	169	4,580
July	84.4	-1.1	None	0	Cells 1 - 13	0	0	70,000	2,600	0	0	219	219	4,799
August	120.3	45.7	None	0	Cells 1 - 13	0	0	70,000	2,600	0	320	313	633	5,432
September	15.5	-41.5	None	0	Cells 1 - 13	0	0	70,000	2,600	0	0	40	40	5,473
October	162.6	128.4	None	0	Cells 1 - 13	0	0	70,000	2,600	0	899	423	1,321	6,794
November	127.7	113.4	None	0	Cells 1 - 13	0	0	70,000	2,600	0	794	332	1,126	7,920
December	161.5	146.6	None	0	Cells 1 - 13	0	0	70,000	2,600	0	1,026	420	1,446	9,366
<i>Maximum estimated leachate volume (m3), (using total rainfall for concrete area and effective rainfall for landfill:</i>											7,194	3,986	11,179	

Area was measured and confirmed to be 2400m<sup>2</sup>

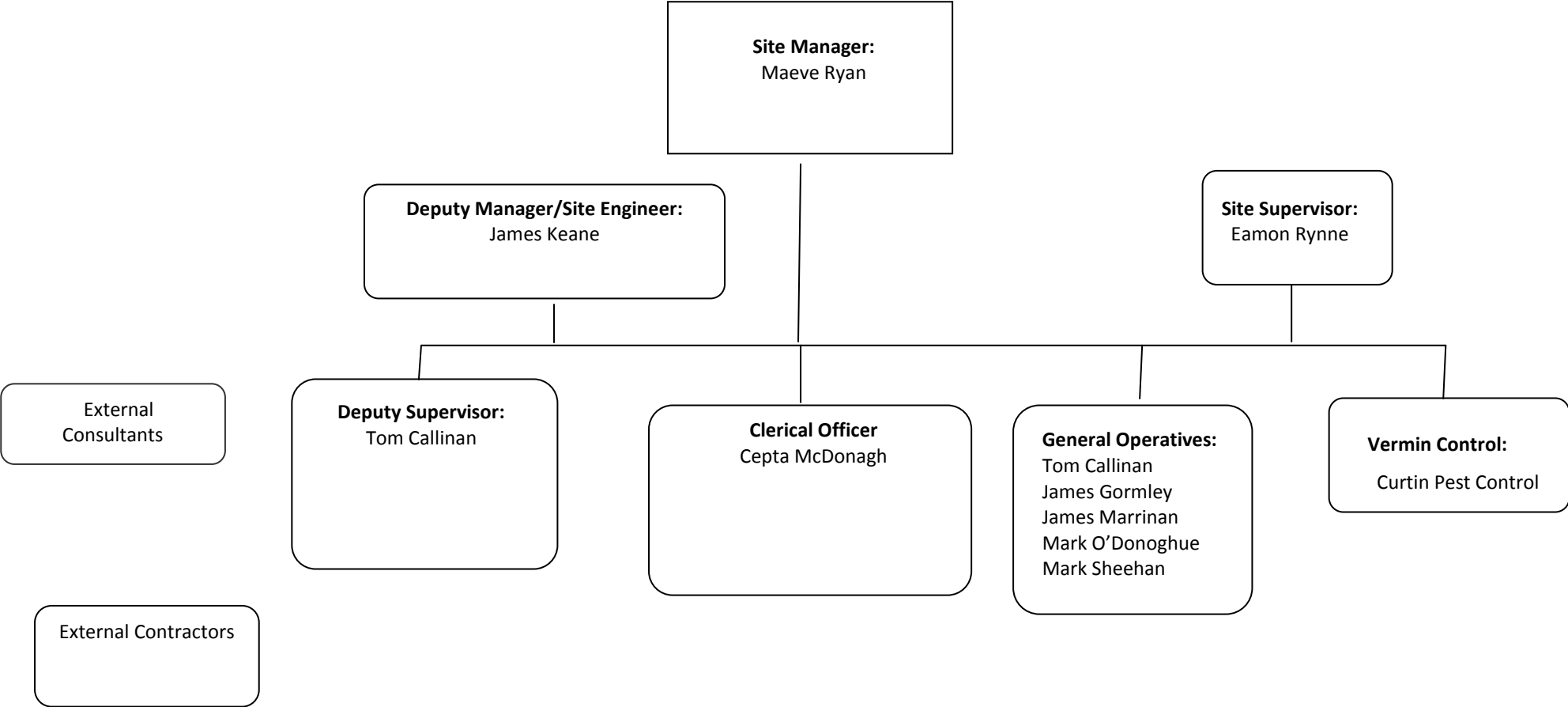
NOTE \*\*: Met Eireann PE data is only available for Shannon. However, total rainfall for Ennistymon was 44% greater than Shannon in 2013 and in 2014. To calculate rainfall in landfill area, Ennistymon total was used with the Shannon PE data, to estimate effective rainfall. To calculate total runoff from concrete, the total Ennistymon 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 may be an overestimate of concrete runoff volumes. .

Actual leachate total for 2014= 12203 tonnes



### **8.3 Management Structure**

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



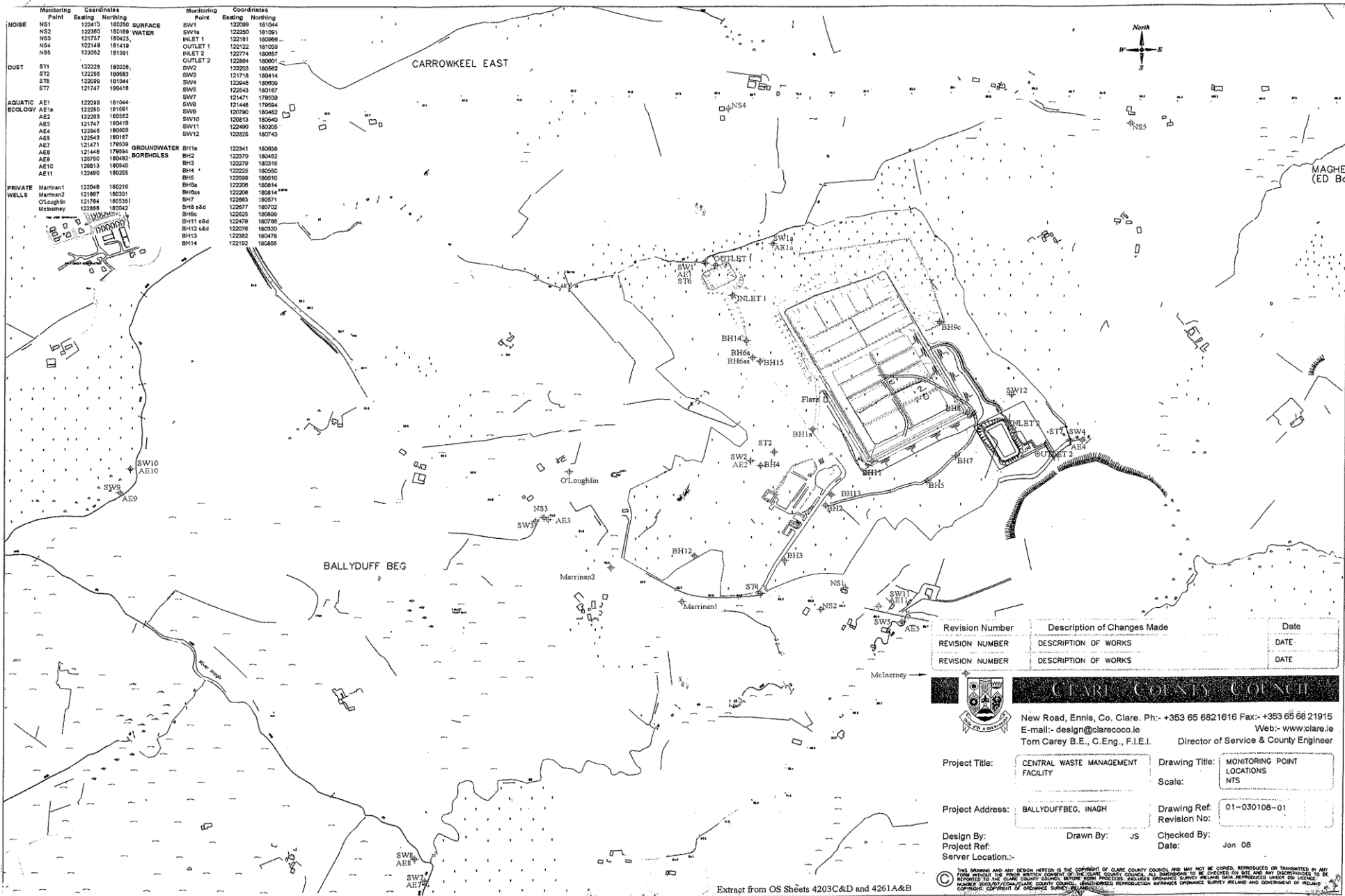
#### **8.4 Summary Details of Incident Reports Issued During 2014**

**Central Waste Management Facility, Ballyduff Beg**

**Incident Report Tracking Sheet 2014**


<b>Incident Report Ref</b>	<b>Subject</b>	<b>Date</b>
INCI003181	Elevated leachate levels in capped cells	07/01/2014
INCI003205	Perimeter well gas levels January 2014	09/01/2014
INCI003181 update	Update report	20/01/2014
INCI003454	TOC analyser down due to reagent pump failure . Closed out on the 11/2/14	10/02/2014
INCI003464	Perimeter well gas levels February 2014	07/02/2014
INCI003181 update	Second update report	18/02/2014
INCI003795	Perimeter well gas levels March 2014	13/03/2014
INCI003982	Perimeter well gas levels April 2014	08/04/2014
INCI004169	Perimeter well gas levels May 2014	06/05/2014
INCI004315	Flare downtime	22/05/2014
INCI004504	Perimeter well gas levels June 2014	13/06/2014
INCI004664	Perimeter well gas levels July 2014	03/07/2014
INCI004965	Perimeter well gas levels August 2014	12/08/2014
INCI005181	Perimeter well gas levels September 2014	04/09/2014
INCI005419	Perimeter well gas levels October 2014	03/10/2014
INCI005845	Perimeter well gas levels November 2014	19/11/2014
INCI006024	Transducer and pump offline in cell 10	04/12/2014
INCI006044	Perimeter well gas levels December 2014	09/12/2014

## **8.5 Monitoring Point Location Map**



Monitoring Point	Coordinates Easting	Coordinates Northing	Monitoring Point	Coordinates Easting	Coordinates Northing
NOISE NS1	122413	180280	SURFACE SW1	122399	181044
NOISE NS2	122380	180189	WATER SW1a	122250	181091
NOISE NS3	121737	180423	INLET 1 SW1b	122181	180995
NOISE NS4	122148	181418	OUTLET 1 SW1c	122122	181038
NOISE NS5	122092	181381	INLET 2 SW1d	122774	180957
DUST ST1	122226	180238	OUTLET 2 SW1e	122564	180907
DUST ST2	122258	180983	SW2	122203	180592
DUST ST3	122036	181044	SW3	121718	180414
DUST ST7	121747	180418	SW4	122848	180939
AQUATIC ECOLOGY AE1	122039	181044	SW5	122543	180187
AQUATIC ECOLOGY AE1a	122280	181081	SW6	121471	179539
AQUATIC ECOLOGY AE2	122203	180252	SW7	121448	179594
AQUATIC ECOLOGY AE3	121747	180418	SW8	120790	180482
AQUATIC ECOLOGY AE4	122846	180869	SW9	120815	180540
AQUATIC ECOLOGY AE5	122543	180187	SW10	122490	180205
AQUATIC ECOLOGY AE6	121471	178539	SW11	122825	180743
AQUATIC ECOLOGY AE7	121448	179594	GROUNDWATER Boreholes BH1a	122341	180038
AQUATIC ECOLOGY AE8	121448	179594	Boreholes BH2	122370	180452
AQUATIC ECOLOGY AE9	120790	180482	Boreholes BH3	122278	180518
AQUATIC ECOLOGY AE10	120815	180540	Boreholes BH4	122225	180550
AQUATIC ECOLOGY AE11	122490	180205	Boreholes BH5	122599	180610
PRIVATE WELLS Mairnan1	122848	180219	Boreholes BH6a	122208	180814
PRIVATE WELLS Mairnan2	121887	180391	Boreholes BH6b	122096	180814
PRIVATE WELLS O'Loughlin	121784	180355	Boreholes BH7	122863	180571
PRIVATE WELLS McNamey	122888	180342	Boreholes BH8	122877	180702
			Boreholes BH9	122925	180899
			Boreholes BH10	122478	180798
			Boreholes BH11	122378	180530
			Boreholes BH12	122382	180478
			Boreholes BH13	122192	180855
			Boreholes BH14		

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  
 Drawing Ref: 01-030108-01  
 Design By: JS  
 Project Ref: JS  
 Server Location: JS  
 Checked By: JS  
 Date: Jun 08

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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>	03/07/2014
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 2014**

## A survey of landfill sites to determine the quantity of methane flared and or recovered in utilisation plants for 2014

Please choose from the drop down menu the license number for your site	<input type="text" value="W0109"/>
Please choose from the drop down menu the name of the landfill site	<input type="text" value="Ballyduff Beg"/>
Please enter the number of flares operational at your site in 2014	<input type="text" value="1"/>
Please enter the number of engines operational at your site in 2014	<input type="text" value="0"/>
Total methane flared	<input type="text" value="568,648"/> kg/year
Total methane utilised in engines	<input type="text" value="0"/> kg/year

**Please note that the closing date for receipt of completed surveys is 31/03/2015**

### 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\_2014) to:

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

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

**Flare No. 1**

Flare type ?	AFS HT750	If "other" enter flare description here		
Is the flare an open or enclosed flare ?	Enclosed	Rated flare capacity ?	750	m3/hr
Month /year comissioned ?	September	2003		
Month decomissioned if decomissioned in 2014 ?	Select			
What is the function of the flare ?	Extraction from capped area	If "other" enter flare function here		

Monthly	Method M/C/E	Runtime days/month	Runtime hrs/day	Downtime hrs	Total runtime hrs/month	Average Inlet Pressure (mbg)	Average Flow Rate (m <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	0.7	743	-10	391	30.60	21.20	2.70	99.9	88,849	60,740
February	M	28	24.0	6.0	666	-10	376	29.50	20.40	2.80	99.9	73,799	50,451
March	M	31	24.0	0.7	743	-10	359	29.60	19.60	3.30	99.9	78,911	53,947
April	M	30	24.0	5.5	715	-10	336	28.70	23.00	3.40	99.9	68,832	47,056
May	M	31	24.0	1.0	743	-10	300	32.10	27.60	2.00	99.9	71,479	48,866
June	M	30	24.0	8.3	712	-10	307	31.60	29.00	2.00	99.9	68,974	47,153
July	M	31	24.0	0.0	744	-10	321	28.60	29.40	2.30	99.9	68,235	46,648
August	M	31	24.0	2.0	742	-10	315	28.70	27.10	2.30	99.9	67,013	45,813
September	M	30	24.0	0.0	720	-10	321	30.40	23.00	1.90	99.9	70,190	47,985
October	M	31	24.0	0.0	744	-10	314	28.80	21.90	1.90	99.9	67,257	45,979
November	M	30	24.0	0.3	720	-10	308	26.50	21.70	1.50	99.9	58,611	40,069
December	M	31	24.0	0.3	744	-10	259	25.80	29.10	1.50	99.9	49,649	33,942
<b>Total</b>					<b>8,735</b>							<b>831,801</b>	<b>568,648</b>

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
2014					0						98.0	0	0



## **8.8 PRTR Returns for 2014**



Environmental Protection Agency

[Guidance to completing the PRTR workbook](#)

# AER Returns Workbook

Version 1.1.18

<b>REFERENCE YEAR</b>	2014
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## 1. FACILITY IDENTIFICATION

Parent Company Name	Clare County Council
Facility Name	Inagh Landfill
PRTR Identification Number	W0109
Licence Number	W0109-02

### Classes of Activity

No.	class_name
-	Refer to PRTR class activities below

Address 1	Ballyduff Beg
Address 2	Inagh
Address 3	
Address 4	
	Clare
Country	Ireland
Coordinates of Location	-9.14882 52.5393
River Basin District	IEGBNISH
NACE Code	3821
Main Economic Activity	Treatment and disposal of non-hazardous waste
<b>AER Returns Contact Name</b>	Maeve Ryan
<b>AER Returns Contact Email Address</b>	mryan@clarecoco.ie
<b>AER Returns Contact Position</b>	Executive Scientist/Facility Manager
<b>AER Returns Contact Telephone Number</b>	065 6846359
<b>AER Returns Contact Mobile Phone Number</b>	
<b>AER Returns Contact Fax Number</b>	
<b>Production Volume</b>	0.0
<b>Production Volume Units</b>	
<b>Number of Installations</b>	0
<b>Number of Operating Hours in Year</b>	0
<b>Number of Employees</b>	7
<b>User Feedback/Comments</b>	Variation in emission levels of air parameters observed. SOx variation due to a higher SOx reading obtained in survey 2 for 2014. No known reason for this as inlet stream and flare operating parameters are unchanged. Variation in methane also observed.
<b>Web Address</b>	www.clarecoco.ie

## 2. PRTR CLASS ACTIVITIES

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

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

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

## 4. WASTE IMPORTED/ACCEPTED ONTO SITE

[Guidance on waste imported/accepted onto site](#)

Do you import/accept waste onto your site for on-site treatment (either recovery or disposal activities) ?	
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**SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS**

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	MAB	Fugitive emission calc. based on Gas Sim model	0.0	35967.0	0.0	35967.0
03	Carbon dioxide (CO2)	M	ISO 12039:2001	Online analysis	2388316.0	2388316.0	0.0	0.0
02	Carbon monoxide (CO)	M	ISO 12039:2001	Online analysis	6.33	6.33	0.0	0.0
08	Nitrogen oxides (NOx/NO2)	M	EN 14792:2005	chemiluminescence Horiba PG250	194.15	194.15	0.0	0.0
11	Sulphur oxides (SOx/SO2)	M	PER	chemiluminescence	809.14	809.14	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**

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 VOC's result will be "less than " level shown"	7.89	7.89	0.0	0.0
52	Tetrachloroethylene (PER)	M	OTH	EN12619. Measure of total VOC's result will be "less than " level shown"	7.89	7.89	0.0	0.0
60	Vinyl chloride	M	OTH	EN12619. Measure of total VOC's result will be "less than " level shown"	7.89	7.89	0.0	0.0
84	Fluorine and inorganic compounds (as HF)	M	ISO/DIS 15713:2004		0.95	0.95	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)**

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
319	Inorganic acids	M	EN 1911-1 to 3:2003	HCl	2.55	2.55	0.0	0.0
230	TA Luft organic substances class 1	M	EN 13649:2001		1.26	1.26	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:	Inagh Landfill				
Please enter summary data on the quantities of methane flared and / or utilised			Method Used		
	T (Total) kg/Year	M/C/E	Method Code	Designation or Description	Facility Total Capacity m3 per hour
Total estimated methane generation (as per site model)	604615.0	E	OTH	GASSIM Model	N/A
Methane flared	568648.0	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)	35967.0	C	Other	Calculated_B41-B42	N/A

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

PRTR#: W0109 | Facility Name: Inagh Landfill | Filename: W0109\_2014(3).xls | Return Year: 2014 |

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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	2.9	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	41.44	paper and cardboard packaging	R3	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01	Cree,Kilrush,County Clare,..Ireland		
Within the Country	15 01 02	No	24.22	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	8.98	metallic packaging, steel cans	R4	M	Weighed	Offsite in Ireland	Clare Waste,WFP/CE/08/0002/01	Raheen,Tuamgraney,County Clare,..Ireland		
Within the Country	15 01 04	No	1.0	metallic packaging, aluminium cans	R4	M	Weighed	Offsite in Ireland	Mr Binman,W0061-03	Luddenmore,Grange,Kilmallock,County Limerick,Ireland		
Within the Country	15 01 05	No	2.08	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	28.0	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	1.28	oil filters	R9	M	Weighed	Offsite in Ireland	Enva,W0184-01	Enva,W0184-01	Enva,W0184-01	Clonminan Industrial Estate,Portlaoise,County Laoise,..Ireland
To Other Countries	16 06 01	Yes	1.68	lead batteries	R4	M	Weighed	Abroad	Enva,W0184-01	Enva,W0184-01	Enva,W0184-01	.....Belgium
To Other Countries	16 06 04	No	3.45	alkaline batteries (except 16 06 03)	R4	M	Weighed	Abroad	Enva,W0184-01	Enva,W0184-01	Enva,W0184-01	.....Spain
Within the Country	19 07 03	No	7703.0	landfill leachate other than those mentioned in 19 07 02	D8	M	Weighed	Offsite in Ireland	Lisdoonvanna Wastewater Treatment plant ,D0077-01	Lisdoonvanna,County Clare,0,Ireland		
Within the Country	19 07 03	No	3356.0	landfill leachate other than those mentioned in 19 07 02	D8	M	Weighed	Offsite in Ireland	Sixmilebridge WWTP,D0076-01	Sixmilebridge,County Clare,..Ireland		
Within the Country	20 01 01	No	71.64	paper and cardboard	R3	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01	Cree,Kilrush,County Clare,..Ireland		
Within the Country	20 01 02	No	18.4	glass	R5	M	Weighed	Offsite in Ireland	Tullagower Quarries Ltd,004/08/WPT/CL	Tullagower,Kilrush,County Clare,..Ireland		
To Other Countries	20 01 11	No	6.86	textiles	R3	M	Weighed	Abroad	Alltex Recyclers Limited 1 Ballycreggagh Road Cloughmills Ballymena BT44 9LB Licence WMEX 04/12,WMEX 04/12	1 Ballycreggagh Rd Cloughmills Ballymena,BT44 9LB,United Kingdom		
Within the Country	20 01 21	Yes	0.66	fluorescent tubes and other mercury-containing waste	R4	M	Weighed	Offsite in Ireland	KMK Metals,W0113/03	Dangan Road,Tullamore,County Offaly,..Ireland	The Recycling Village,..Unit 21,Duleek Business Park,Commons,Duleek Meath,Ireland	.....Ireland
To Other Countries	20 01 23	Yes	12.32	discarded equipment containing chlorofluorocarbons	R4	M	Weighed	Abroad	Electrical Waste Management,WFP DS-09001201	Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,County Dublin,Ireland	.....Ireland	.....United Kingdom
Within the Country	20 01 25	No	0.36	edible oil and fat	R9	M	Weighed	Offsite in Ireland	Frilite,..	Clonminan Industrial Estate,Portlaoise,County Laoise,..Ireland		
Within the Country	20 01 28	No	19.88	paint, inks, adhesives and resins other than those mentioned in 20 01 27	R1	M	Weighed	Offsite in Ireland	Enva,W0184-01	Enva,W0184-01		
Within the Country	20 01 35	Yes	25.05	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components	R4	M	Weighed	Offsite in Ireland	The Recycling Village,..Unit 21,Duleek Business Park,Commons,Duleek Meath,Ireland	.....Ireland	.....Ireland	
To Other Countries	20 01 36	No	52.43	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	R4	M	Weighed	Abroad	Electrical Waste Management,WFP DS-09001201	Jordanstown Drive,Greenogue Industrial Estate,Rathcoole,County Dublin,Ireland	.....Ireland	.....United Kingdom
Within the Country	20 01 38	No	153.0	wood other than that mentioned in 20 01 37	R3	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01	Cree,Kilrush,County Clare,..Ireland		
Within the Country	20 01 39	No	51.5	plastics	R3	M	Weighed	Offsite in Ireland	Mr Binman,W0061-03	Luddenmore,Grange,Kilmallock,County Limerick,Ireland		
Within the Country	20 01 40	No	121.28	metals	R3	M	Weighed	Offsite in Ireland	Hegarty Metals, WFP/LK/2008/07C	Ballysimon Road,Limerick,..Ireland		
Within the Country	19 07 03	No	1354.0	landfill leachate other than those mentioned in 19 07 02	D8	M	Weighed	Offsite in Ireland	Limerick Main Drainage WWTP,D0013-01	Limerick,County Limerick,..Ireland		
Within the Country	20 03 01	No	931.78	mixed municipal waste	D1	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01	Cree,Kilrush,County Clare,..Ireland		
Within the Country	20 03 01	No	0.0	cant delete row	R4	M	Weighed	Offsite in Ireland	.....	.....Ireland		
Within the Country	20 03 07	No	24.16	bulky waste	R4	M	Weighed	Offsite in Ireland	Clean Ireland,W0253-01	Cree,Kilrush,County Clare,..Ireland		
Within the Country	16 06 01	Yes	2.033	lead batteries	R4	M	Weighed	Offsite in Ireland	Rilta Environmental Ltd,W0192-03,Block 402 Grant's Drive,Greenogue Business Park Rathcoole,County Dublin,..Ireland	HJ Enthoven & Sons .BL5598IR, Darley dale Smelter, South Darley, Matlock Derbyshire,DE4 2LP,United Kingdom		.....United Kingdom
Within the Country	20 03 01	No	0.0	mixed municipal waste	R4	M	Weighed	Offsite in Ireland	.....	.....Ireland		