



Comhairle Contae an Chláir

Clare County Council
Central Waste Management Facility, Ballyduffbeg, Inagh, Co Clare.
► Annual Environmental Report
2010

Prepared by:

Environment and Water Services Directorate, Clare County Council.

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2. INTRODUCTION

2.1 Preamble.

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

This report addresses Condition 2.3 of the waste licence for the facility. Condition 2.3 states that within six months of the date of grant of this licence, the licensee shall submit to the Agency for its agreement, within 13 months of the date of grant of the licence and within one month of the end of each year thereafter, an Annual Environmental Report (AER).

The AER shall include as a minimum the information specified in Schedule B: Content of Annual Environmental Report and shall be prepared in accordance with any relevant written guidance issued by the Agency.

This report is prepared within the context of Schedule B (Content of the Annual Environmental Report). Where support information is required it is presented in the appendices.

2.2 Reporting Period

This report covers the period January 1st to December 31st 2010.

2.3 Waste Activities carried out at CWMF.

Waste activities at the CWMF are restricted to those outlined in Part 1 Activities of the waste licence, these are reproduced in Appendix 8.1.

Municipal solid non-hazardous waste is accepted at the facility from both commercial and domestic customers and disposed of in engineered lined cells.

The Civic Amenity Area provides recycling receptacles for the collection and recycling of various recyclable waste streams, the materials accepted are detailed in Table 3.3

A composting area has been developed to accept and treat green waste from domestic customers only. It has been operational since January 2006 with a total of 1500t of domestic green waste diverted from landfill between 2006 and the end of 2010.

3. MATERIALS/WASTE TRANSPORTED ON/OFF SITE

3.1 Quantity of disposed waste

The type and quantity of waste accepted for landfill in 2010 is shown in Table 3.1.

TABLE 3.1: QUANTITY (TONNES) OF MSW DISPOSED OF IN 2010.

Waste type	Domestic Waste*	Commercial Waste*	Total
January	1,420	710	1,400
February	1,213	607	800
March	1,293	647	870
April	1,367	684	940
May	1,173	587	1050
June	1,323	662	1180
July	1,233	617	2,550
August	1,127	563	2,860
September	410	205	2,920
October	630	315	2,710
November	1,233	617	4,210
December	2,033	1,017	4,205
Total	14,458	7,229	21,686

Based on approximate 2/3: 1/3 split.

TABLE 3.2: WASTE VOLUME (TONNES) ACCEPTED FOR LANDFILLING SINCE JULY 2002

Period	Waste Type			Cumulative Total
	Household	Commercial	Total	
July 2002 - June 2003	31,548	5,799	37,347	37,347
July 2003 - June 2004	33,522	9,764	43,287	80,634
July 2004 - December 2004	19,929	10,055	29,934	110,568
January - December 2005	30,773	22,169	52,942	163,510
January - December 2006	20,227	13,484	33,712	197,222
January - December 2007	26,386	19,903	46,289	243,511
January - December 2008	19,996	13,328	33,324	276,835
January - December 2009	15,417	10,278	25,695	302,530
January - December 2010	14,458	7,229	21,686	324,216

3.2 Method of Deposition of Waste

Waste is deposited in compacted layers from the base of the cell up. A 37 tonne steel-wheeled compactor is used to compact the waste. A minimum of three passes of the compactor is employed over each load received.

All exposed areas of the active cell are covered daily with a layer of GeoPoly or Hessian material with additional cover material applied to the surface of the daily cover layer to weigh it down. Larger quantities of additional cover material are applied over the Hessian/geopoly on a weekly basis. During 2010, the cover material comprised wood ash, construction & demolition fines and clay.

Nuisance control measures are employed to reduce to a minimum the nuisance effect of landfilling operations. These are detailed in section 7.0

3.3 Civic Amenity Area

All non-commercial customers are directed to the Civic Amenity site. Various receptacles are provided within the site for collection of recyclable waste. The waste streams accepted for recycling are outlined in Table 3.3. Collection receptacles for household waste deposited by the public are also provided. The collection of waste electrical and electronic equipment (WEEE) commenced on August 13th 2005. All WEEE is stored on site prior to collection by the nominated contractor.

Green waste composting commenced in January 2006, using an aerated static pile to process domestic green waste received directly in the CWMF CA site and also green waste brought from Lisdeen, Ennis and Shannon CA sites. Exhaust air from the aerated static pile is drawn through a woodchip biofilter to protect against odours. The compost is turned regularly and compost temperature is recorded. The finished product is tested four times per annum in accordance with the requirements of W01090-02. CWMF compost is used mainly as a soil conditioner within the site. Small quantities of compost have been used in the past by the gardening section of Clare County Council. However all of the material produced in 2010 (**404.64 tonnes**) was used within the site. The Council began accepting garden waste in January 2006 with a total of 1500t recovered to the end of 2010.

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

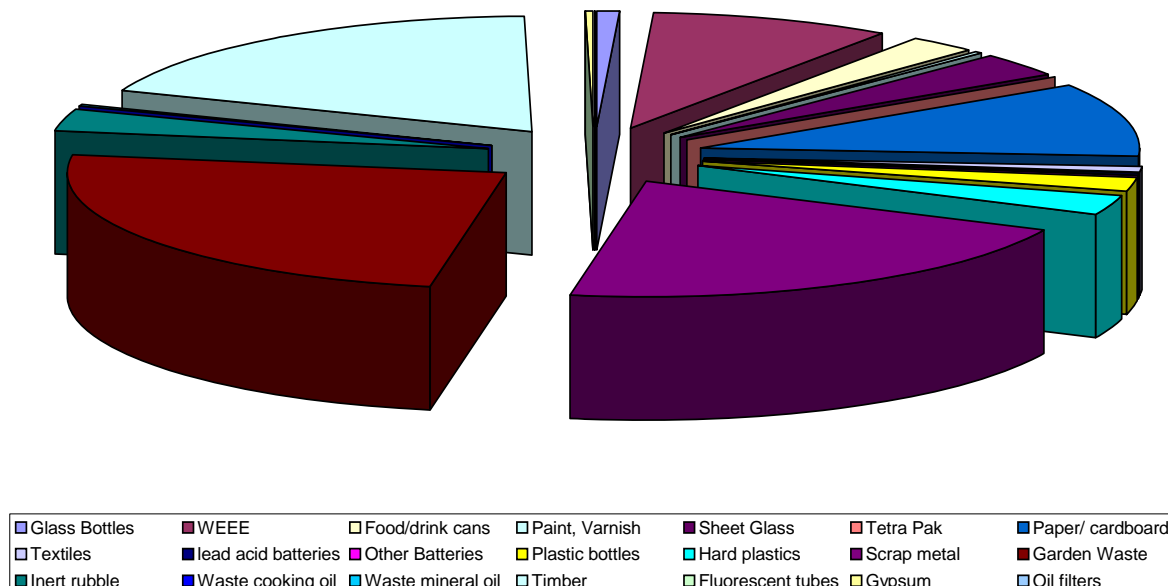
In early 2009, construction & demolition waste from domestic customers was accepted with the agreement of the Agency. A total of approximately 48 tonnes was received

during the year. This material is used in the construction of haul roads within the active cell.

TABLE 3.3: QUANTITY (TONNES) OF MATERIALS RECOVERED IN 2010

Material	Quantity	Material	Quantity	Material	Quantity
Glass Bottles	14.16	Textiles	16.2	Waste cooking oil	0.56
WEEE	146	Batteries	4.89	Waste mineral oil	5.2
Food/drink cans	39.0	Plastic bottles	30.4	Timber	311
Paint, Varnish	6.3	Hard plastics	45.8	Fluorescent tubes	0.9
Sheet Glass	53.8	Scrap metal	342	C&D fines	1,716
Tetra Pak	1.7	Green waste	405	Wood ash	4,523
Paper/ cardboard	165.0	Inert rubble	47.7	Oil filters	0.82
Wood chip for recovery	448	Gypsum (diverted from CA site landfill stream)	1.8	TOTAL	8,325

Fig. 3.1: Quantity of Household Materials* Recycled/Recovered (% by wt) January to December 2010



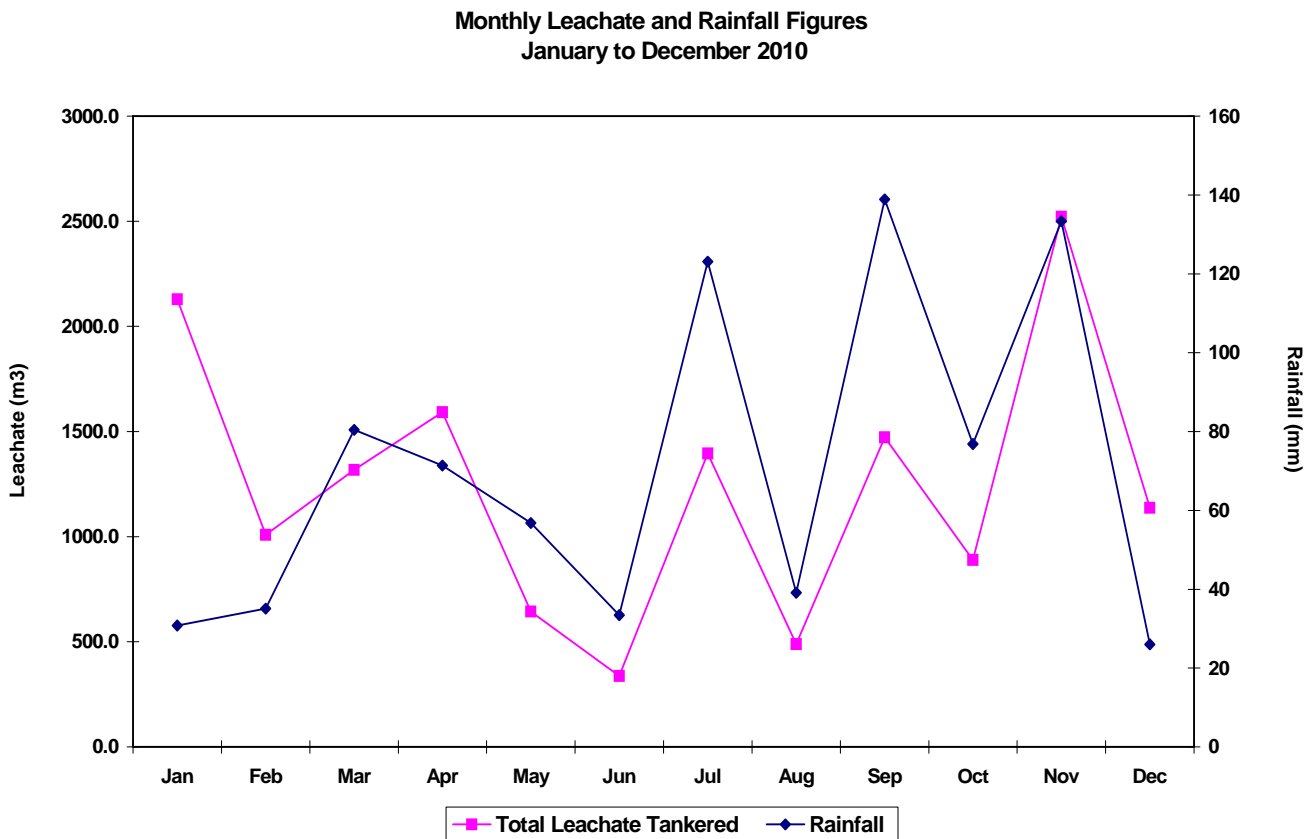
Note *: Excludes commercial C&D fines and wood ash.

3.4 Leachate Quantities/Water Balance.

Leachate is pumped from a collection sump at the base of each landfill cell to a storage tank within the civic amenity site. Pumps are controlled via the SCADA system to start and stop at specified levels within the cells. Potentially contaminated stormwater from designated areas within the civic amenity site is discharged to a second site leachate storage tank. Leachate is pumped from these tanks and transported by Lack Plant Hire (permit number WCP/LK/115/05c) to wastewater treatment plants in Lisdoonvarna, Sixmilebridge and Bunlicky (Limerick City Main Drainage). Leachate reduction measures are actively pursued under objective 3 of the facility EMS. In total, 14,933 tonnes of leachate were transported off site during 2010. The quantities moved each month are graphed against monthly rainfall in figure 3.2 below.

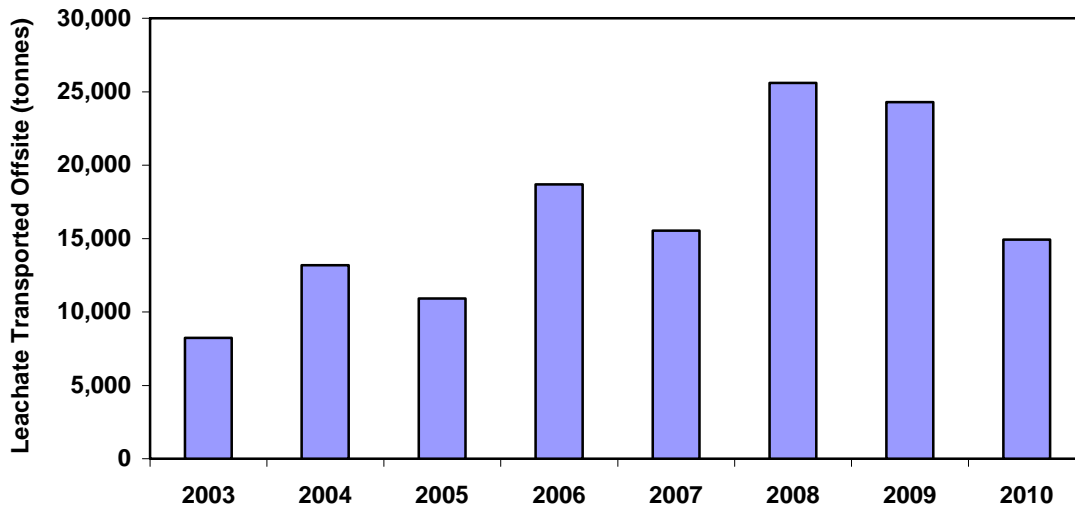
As would be expected, the tonnage of leachate transported correlates closely with monthly rainfall figures for the year.

Fig. 3.2: 2010 rainfall and leachate levels:



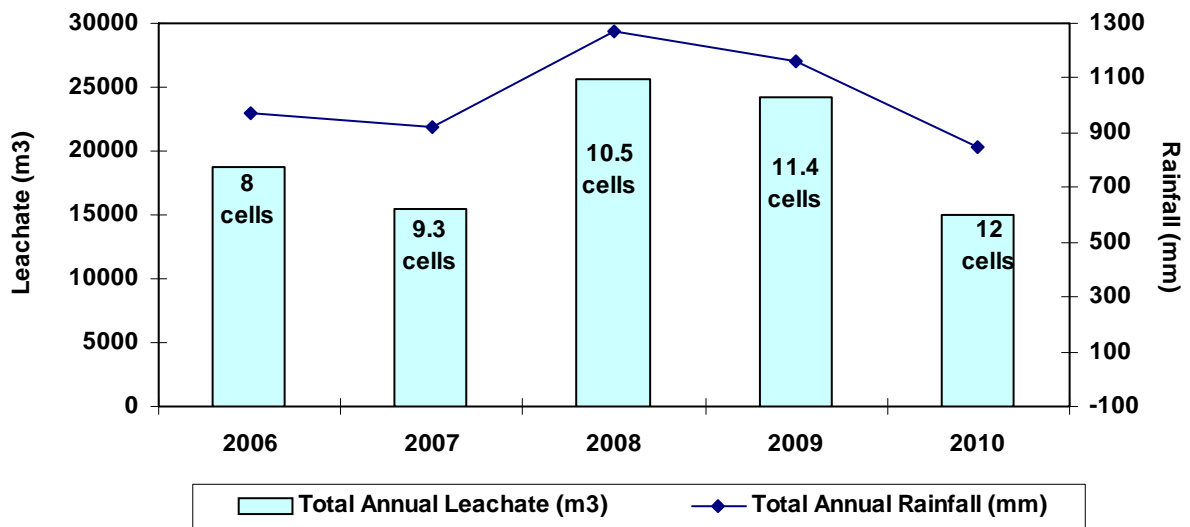
Annual leachate and rainfall volumes from 2003 to 2010 are shown in fig. 3.3 below:

Fig. 3.3: Annual Leachate Tonnages (2003 to 2010)



The volume of leachate increased as expected between 2002 and 2009 with the development of new landfill cells. The volume reduced in 2010, in part due to reduced annual rainfall for the year (see fig.3.4 below). The reduced leachate volume is also attributed to the installation of rain flaps on the side slopes of capped cells to reduce overflow of clean rainwater from these areas into the active cell and to the installation of kerbing in the civic amenity site to minimise overflow of clean rainwater from the road onto the leachate collection area, a problem which had previously occurred during extreme rainfall events.

Fig. 3.4: Summary of annual leachate and rainfall volumes, 2006 to 2010 (no. of cells filled or part filled by year end also shown on graph)



Clare County Council is currently using pump run time data generated by our SCADA system to calculate actual infiltration rates. This data will be submitted with the 2011 AER.

A monthly water balance calculation for the site is attached in Appendix 8.2. This calculation gives a theoretical leachate volume for the year of 12,916m³ (tonnes) based on Shannon rainfall figures and factoring in the reduced infiltration on side slopes due to the rainflap installation. The actual leachate volume for 2010 was slightly higher at 14,933 tonnes, most likely due to higher rainfall levels experienced at this site. The water balance assumes an infiltration rate of 10% over capped areas. Clare County Council has assessed leachate infiltration from leachate pump run times and pump delivery data. The infiltration rate for 2010 averaged 10% over capped cells, with some variation between individual cells.

3.5 Landfill Gas Management, January to December 2010

The landfill gas flare operated continuously during 2010 with no downtime other than for routine servicing. The gas collection network was extended during the year with nine permanent gas wells installed in cell 12 in early November 2010. These wells were installed while the cell was still being filled.

Gas extraction has been in place in all active cells since February 2009 via a network of sacrificial horizontal gas extraction lines which are buried in the waste as the cell is constructed. The purpose of this sacrificial gas collection system is to assist in the control of gas odours from active cells.

Due to a reduction in waste intake, cell 12 was the active cell for a sixteen-month period between 2009 and December 2010. Despite the use of horizontal gas extraction pipes within the cell, the extended opening period resulted in difficulties with active cell gas management. A temporary flare was installed in September 2010 specifically for the purpose of odour management for the active cell. The active cell gas field and flare inlet were measured/balanced on a daily basis between September 2010 and January 2011, until lining of cell 12 was complete.

Filling of cell 13 commenced on the 13th December 2010. A permanent cap was applied to cell 12 between December 2010 and January 2011. This work included the installation of an LLDPE liner (gas barrier layer) to the top and side slopes of the cell.

The flare was upgraded in May 2008 from a total capacity of 750m³/hr to 850m³/hr and is currently running at 90% of capacity. Because landfill gas rates vary due to differential decomposition of the waste, the level of methane in a waste cell can fluctuate, decreasing over time as the waste becomes substantially biodegraded. Should oxygen levels in the gas feed to the flare rise to 8%v/v, the flare will shut down. The

gas field is balanced by site staff on a weekly basis (and more frequently where required) to address this issue and to ensure that methane-rich gas is delivered to the flare. Maintaining the integrity of the pipe network and freeing blocked lines is also an essential element of the gas management system.

During 2010, the permanent flare burned a total of 5,448,135m³ of landfill gas (at an average flow rate of 623m³/hr). Mean methane and carbon dioxide levels were 36.7%v/v and 20.8%v/v respectively. The temporary flare burned an additional 473,000m³ of landfill gas between September and December 2010 at a mean methane concentration of 31%v/v (mean CO₂ was 24%v/v).

By the end of 2010, landfill gas was being extracted from five permanently capped cells in phase one (cells 1, 2, 3, 4 and 5), four permanently capped cell in phase two (cells 6, 7, 8 and 9), two permanently capped cells in phase 3 (cells 10 and 11) and from the active cell in phase 3 (cell 12).

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 has caused Clare county Council to reassess the economic value of this project. It is still under active consideration and Clare County Council hopes to proceed as soon as an economically feasible option can be found. This may involve utilising an energy services company (ESCO).

The cumulative quantity of landfill gas flared between start-up of the flare and the end of December 2010 is 22,115,000m³.

3.6 Resource and Energy Consumption Summary

Resource and energy consumption figures are outlined below for the CWMF for 2010:

TABLE 3.4: RECORDED DIESEL CONSUMPTION IN 2010

Plant/Machinery	Unit	Quantity
Generator	litres	150
JCB, (CCC)	litres	2,586
Tractors	litres	3,538
Dumpers and CCC excavator, pumps	litres	13,626
CCC Site Vehicle (Toyota Pick-up)	litres	1,250
Compactor and Dozer (Lack Plant Hire-Active cell)	litres	35,000
Hyundai Track Machine and Dumper (Kearney Plant Hire)	litres	12,000
Total amount of Diesel Consumed:	litres	68,150

Diesel consumption figures are based on plant hire contractor information and CCC records for its own vehicles.

Electricity consumption was approximately 180,000 kWh for reporting period, January to December 2010.

4. SUMMARY OF MONITORING AND EMISSIONS

4.1 General

Section 4.0 presents the results of groundwater, surface water, leachate, noise, dust and flare monitoring for compliance with Condition 9 of Waste Licence W0109-02 for the period January to December 2010. Monitoring was conducted in accordance with Schedule E of the Waste Licence as indicated in Table 4.1 below.

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

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

Monitoring was carried out at the locations and frequencies specified in each of the above referenced schedules of the Waste Licence unless otherwise noted in this report. Surface water, groundwater, leachate, noise and dust monitoring surveys were conducted by TMS Environment Limited. Conservation Services assessed biological quality of surface waters. Biosphere Environmental Services carried out the ecological surveys for the facility. Biannual monitoring of flare stack emissions was carried out by TMS Environment Ltd. Environmental monitoring locations are shown in Drawing No. 1, attached in Appendix 8.5.

4.2 Landfill Gas

See also section 3.5 above. Monitoring of waste body wells was carried out on a weekly basis throughout the year. Gas monitoring results were submitted to the Agency in monthly reports during the year. Monitoring of wells within the active cell was carried

out on a daily basis between September and December 2010, in response to difficulties experienced with active cell gas management.

Monitoring of perimeter wells was conducted on a weekly basis throughout the year at LG1 to LG21b. As for previous years, methane levels at a number of the perimeter wells were elevated during the year. This is believed to be due to the ongoing decomposition of vegetation left in place prior to construction of the embankments. A number of investigations have been carried out over the past five years that confirm this assessment. These included pumping trials, use of hydrogen sulphide as a marker gas, use of spike bars on the landfill side of the access road, and the installation of additional monitoring wells. Odour Monitoring Ireland (OMI) carried out a comparative assessment of the VOC profile of the landfill gas and of the perimeter well gas in early 2007. Results of the assessment showed no relationship between the two VOC profiles, indicating that elevated perimeter well methane levels are unrelated to landfilling activities. This study was repeated during 2010; results again showed no comparison between waste body and perimeter well VOC type and level, providing further confirmation that the source of the perimeter well gas is unrelated to landfilling activities.

4.3 Landfill Gas Flare

The outlet from the landfill gas flare was 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)	16th August 2010	19th November 2010	Emission Limit¹
Nitrogen Oxides (NO _x) as NO ₂ (mg/Nm ³)	84.1	70.9	150 mg/m ³ for Flare Stacks
Carbon Monoxide (CO) (mg/Nm ³)	30.8	12.1	50 mg/m ³ for Flare Stacks
Sulphur Dioxide (SO ₂) (mg/Nm ³)	<11.7	<12.3	-
Temperature (°C)	1020	1,022	-
Volumetric Flow Rate (Nm ³ /hr)	640	670	3,000
Vinyl Chloride (mg/Nm ³)	<15.9	-	-
Acetonitrile (mg/Nm ³)	<15.9	-	-
Dichloromethane (mg/Nm ³)	<15.9	-	-
Tetrachloroethylene (mg/Nm ³)	<15.9	-	-
TA Luft Class I (mg/Nm ³)	<1.59	-	20 mg/m ³ (at mass flows >0.1 kg/hr)
TA Luft Class II (mg/Nm ³)	<7.9	-	100 mg/m ³ (at mass flows >2 kg/hr)
TA Luft Class III (mg/Nm ³)	<15.9	-	150 mg/m ³ (at mass flows >3 kg/hr)
HCl (mg/Nm ³)	<4.3	8.9	50 mg/m ³ (at mass flows >0.3kg/hr)
HF (mg/Nm ³)	<0.09	<0.06	5 mg/m ³ (at mass flows >0.05 kg/hr)

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

4.4 Dust

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

TABLE 4.3: TOTAL DUST MONITORING RESULTS.

Sample location	Monitoring Period			Limit for Dust Deposition (mg/m ² /day)
	10 th May to 10 th June 2010	18 th June to 15 th July 2010	15 th July to 16 th August 2010	
ST1	44	39	39	350
ST2	16	31	98	350
ST6	12	38	98	350
ST7	55	116	83	350

All results were below the licence limit of 350mg/m²/day.

PM₁₀ monitoring was carried out over four twenty-four hour periods as detailed below:

- ST1: 31st May 2010
- ST2: 1st June 2010
- ST6: 2nd June 2010
- ST7: 3rd June 2010

All results were within the licence limit of 50ug/m³. These results were submitted in the quarterly environmental monitoring report for April to June 2010.

4.5 Noise

Results of noise monitoring carried out during the year are summarised in Table 4.4. Survey results were submitted to the Agency in the environmental monitoring report for each quarter.

Noise survey findings were similar to previous surveys, with noise levels at noise sensitive locations NS4, NS5 and NS6 in compliance with the 55 dB(A) daytime limit and noise levels at NS1, NS2 and NS3 above licence limits. The elevated noise levels at NS1, NS2 and NS3 were attributed to passing road traffic, as was reflected in the high L₁₀ readings recorded at each monitoring point. Site noise did not contribute to the measured noise levels at these locations.

TABLE 4.4: ENVIRONMENTAL NOISE SURVEY RESULTS.

Location ID	31 st May 2010			16 th August 2010		
	L _{Aeq} , 30min dB(A)	L _{A90} , 30 min dB(A)	L _{A10} , 30 min dB(A)	L _{Aeq} , 30 min dB(A)	L _{A10} , 30 min dB(A)	L _{A90} , 30 min dB(A)
NS1	70	48	74	74	51	78
NS2	68	45	73	72	42	76
NS3	73	43	77	74	37	78
NS4	48	41	50	39	35	40
NS5	46	40	49	37	32	39
NS6	50	39	48	38	31	40

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, inlet to the stormwater ponds (SW inlet 1 and SW inlet 2), outlet from the sand filters for both ponds (SW outlet 1 and SW outlet 2), SW2, SW3, SW4, SW5, SW7, SW8, SW9, SW10, SW11 and SW12 (an eastern boundary drain feeding into Stream 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.

The Inagh River in the vicinity of the landfill is currently assigned High Status under the Shannon River Basin Management Plan. For High Status waters, the EU Environmental Objectives (Surface Waters) Regulations (SI 272 of 2009), prescribe physiological conditions that support the biological elements that define status. Where relevant, surface water results for the site are compared to these objectives. Results are also compared, as for previous years, to appropriate limits for salmonid waters, although the Inagh river and streams are not designated salmonid waters.

4.6.1.1. Surface Water BOD:

BOD results for surface water streams and for the inlet and outlet to the stormwater ponds are graphed in figures 4.1 to 4.3. Also shown on the graph, for comparative purposes only, is the 5ppm BOD limit for Salmonid Waters. In relation to the surface water regulations, the objective for BOD for the Inagh River in the vicinity of the landfill, is less than or equal to 1.3ppm (mean result) or less than or equal to 2.2ppm (95%ile). BOD results which are below 2ppm are reported by our monitoring consultants as less than 2ppm (the limit of detection of the method). Therefore it is not possible to compare mean results with the environmental quality objectives. Clare County Council will request that BOD analyses carried out during 2011 take account of the lower limit of detection in order that results can be directly compared with the surface water mean BOD standard.

Figure 4.1

Figure 4.2

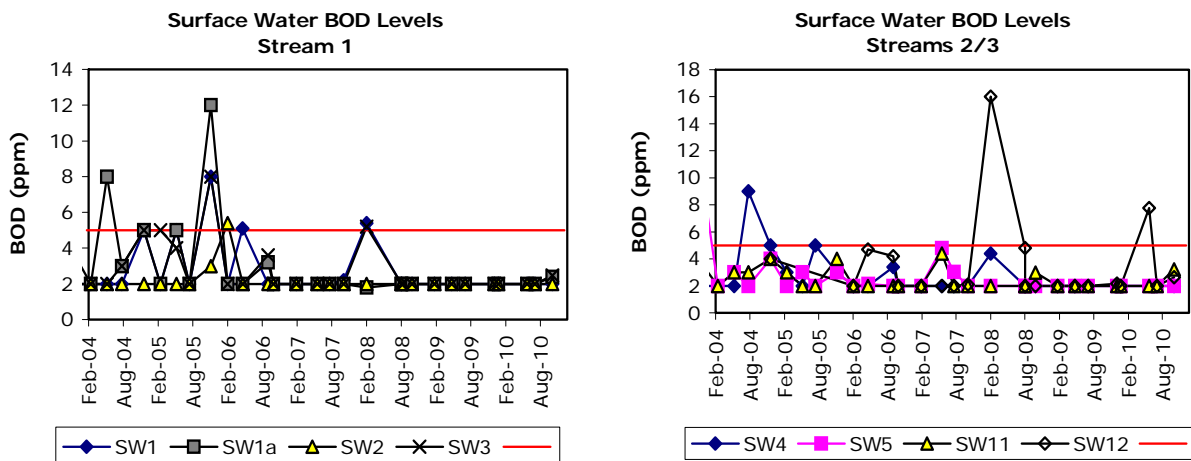
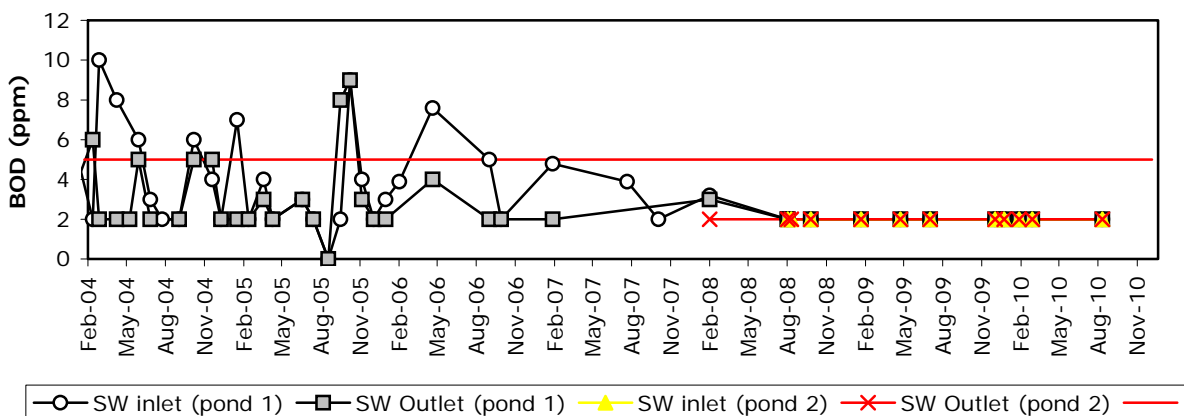


Figure 4.3

SW Inlet and Outlet BOD Levels

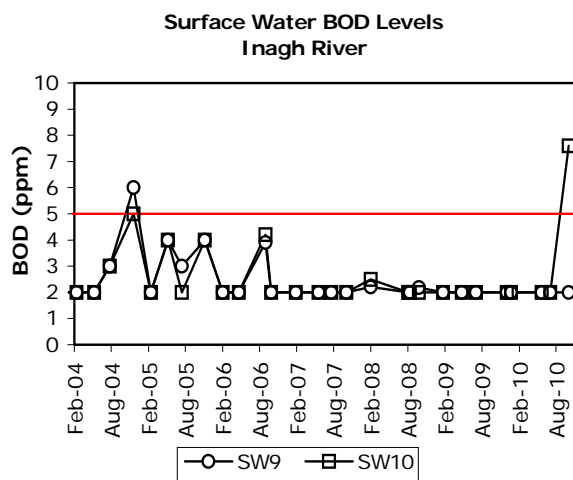
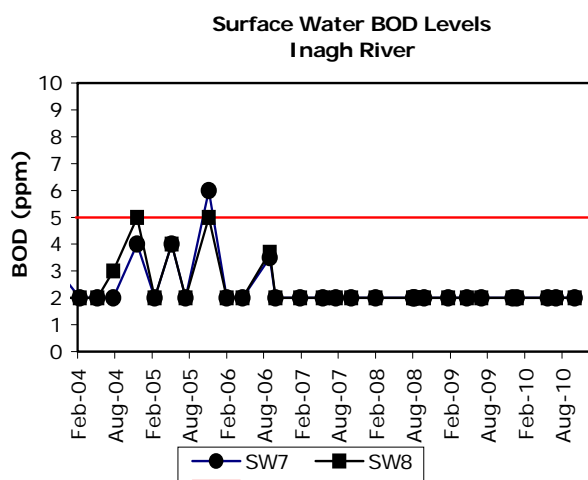


As can be seen from the graphs, BOD results for samples from all site streams and for inlet and outlet samples from both surface water ponds were below the 5ppm comparative limit throughout 2010 except for one result of 7.76ppm for SW12 in June 2010 (7.76ppm).

BOD results for Inagh river monitoring locations are graphed in figures 4.4 and 4.5.

Figure 4.4

Figure 4.5



BOD results for the Inagh river were well below 5ppm in 2010 with the exception of one anomalous result for SW10 in October 2010 (7.6ppm). Stream 1 flows into the Inagh river between SW9 and SW10. BOD results for stream 1 and for the SW inlet and outlet samples were all satisfactory (all below 2ppm), indicating that the single elevated result for SW10 is an anomalous result unrelated to site activities.

Results for SW7, SW8 and SW9 were below the BOD surface water quality standard of less than 2.2ppm (95%ile).

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 for the four year period from 2007 to end of 2010. The ammonia limit for salmonid waters is shown on the graphs for comparative purposes only. As stated above, none of the surface waters are classified as salmonid waters.

The ammonia limit under the Surface Water Regulations (2009) is 0.040ppm (mean) or 0.090ppm (95%ile) for high status waters.

Figure 4.6

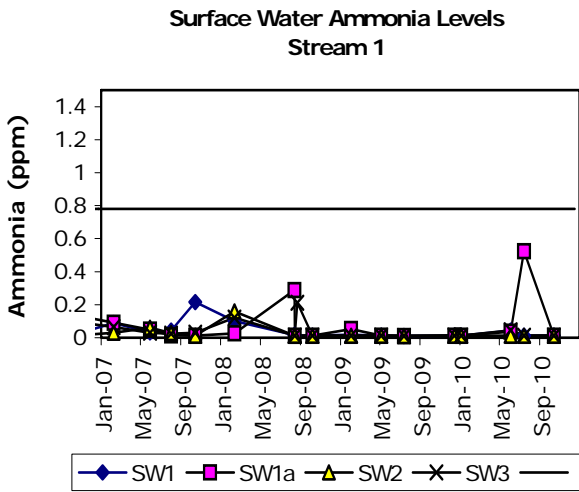


Figure 4.7

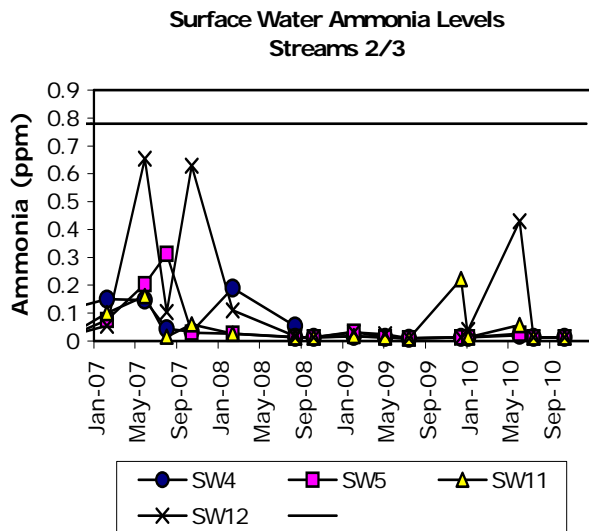


Figure 4.8

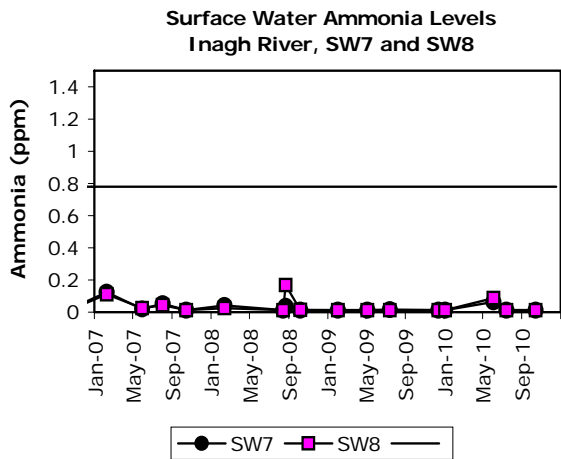
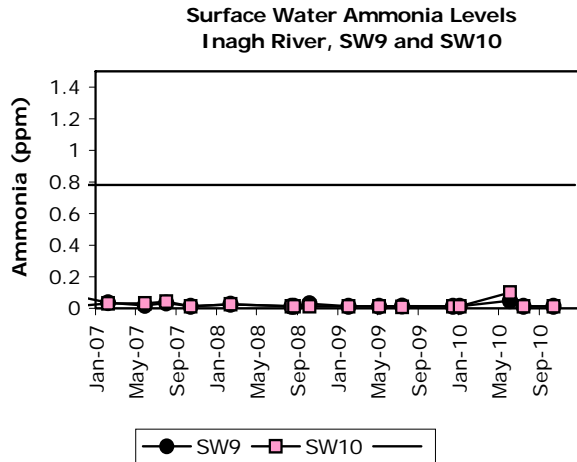


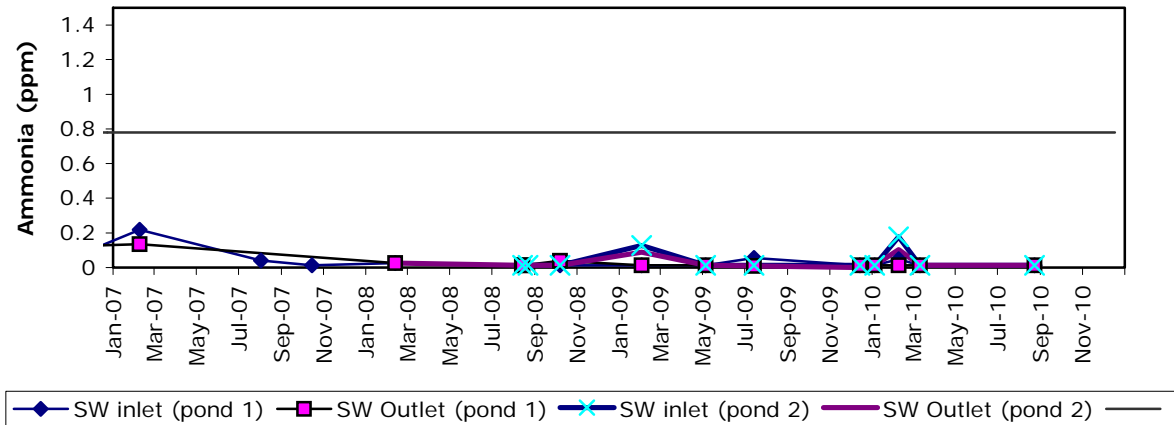
Figure 4.9



Results for all surface water samples were consistently below the limits for salmonid waters throughout the four-year period. Results were also below the surface water quality standard of 0.09ppm(95%ile).

Ammonia levels in SW inlet and outlet samples were consistently satisfactory throughout the reporting period (see figure 4.10 below):

Figure 4.10: Ammonia Results for Swinlet and SWoutlet samples

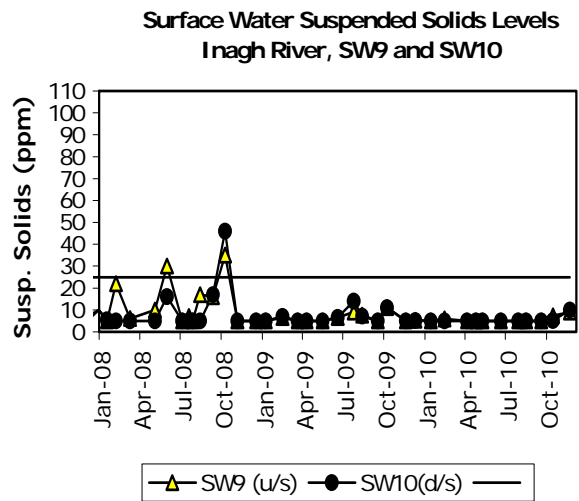
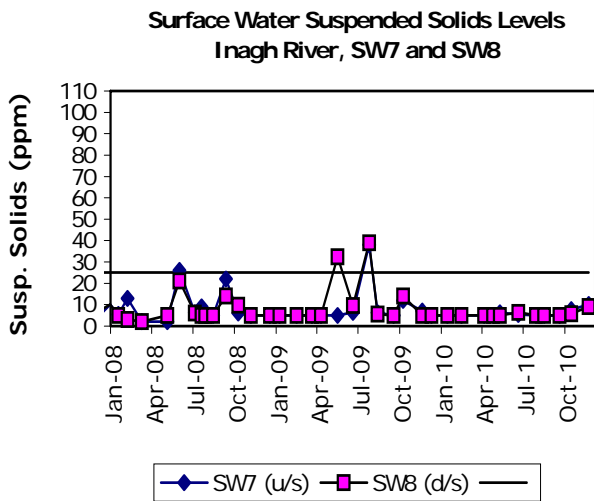


4.6.1.3 Surface Water Suspended Solids.

All surface water monitoring locations are visually inspected each week and monthly surface water samples are analysed for suspended solids levels by TMS Environment Ltd. Results obtained for 2008 to 2010 are graphed in figures 4.11 to 4.15. The 25ppm suspended solids limit for Salmonid waters is included in figures 4.11 to 4.14 for comparative purposes only. The 35ppm licence limit for surface waters discharging from the site is shown on figure 4.15.

Figure 4.11

Figure 4.12

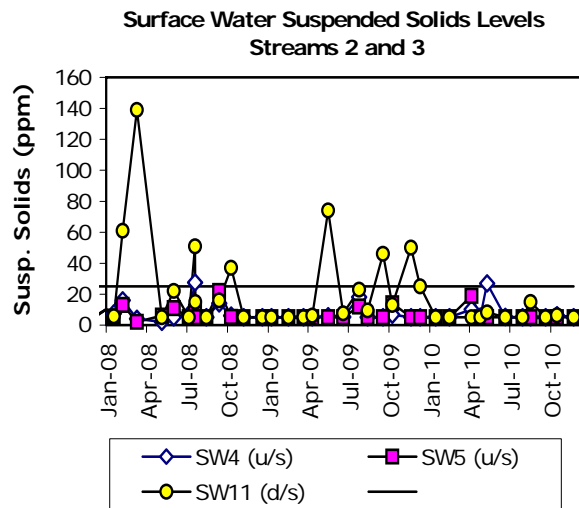
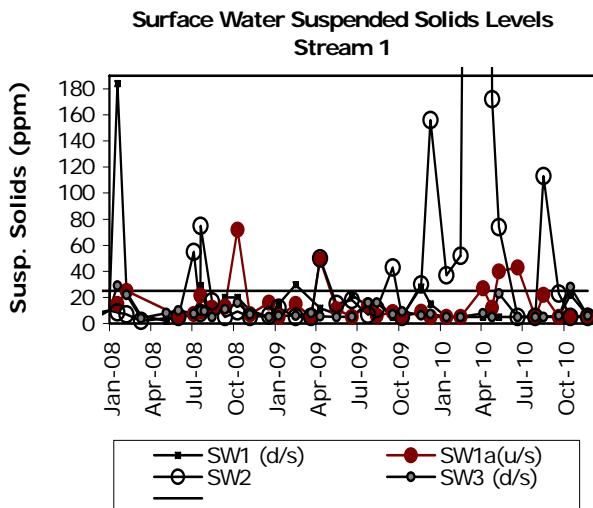


As can be seen from figures 4.11 and 4.12, Inagh River suspended solids levels were below 25ppm throughout 2010. Slightly elevated results were measured at upstream and downstream locations in 2008 and 2009 (see previous AER's). These results are most likely weather related.

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

Figure 4.13

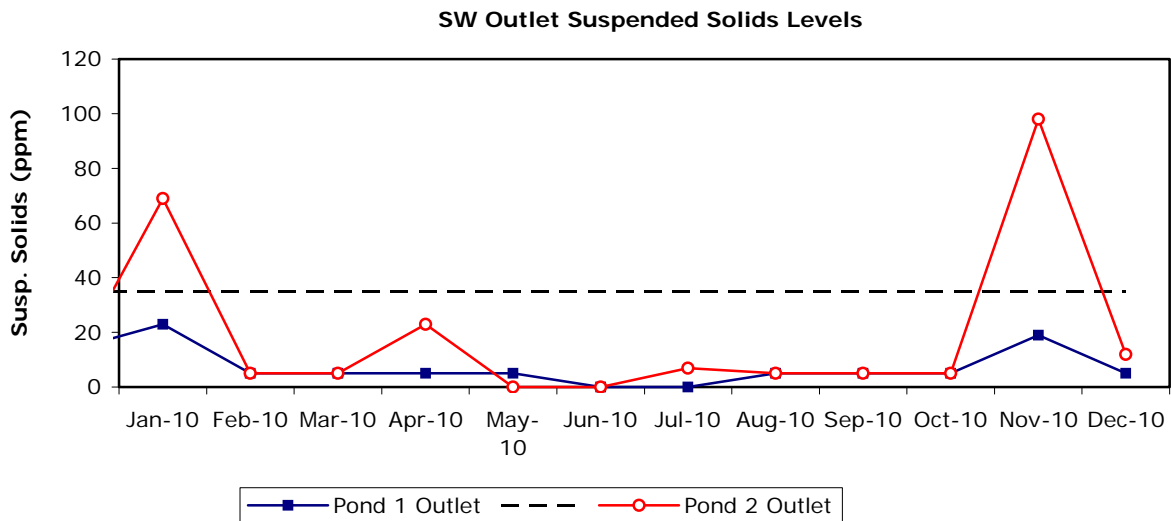
Figure 4.14



Suspended solids results for Streams 2/3 were below the salmonid limit at both upstream and downstream locations in 2010. Stream 1 results exceeded 25ppm on a number of occasions at SW2 and to a lesser extent at SW1a, which is upstream of the discharge from pond 1. Stream 2 is a very shallow stream to the west of the civic amenity site. From discussions with monitoring personnel, it appears that the elevated results are due to the difficulty of sampling without suspending bottom sediment.

Suspended solids levels at both surface water outlet points during 2010 are graphed below in figure 4.15. Also shown on the graph is the 35ppm licence limit.

Figure 4.15



As can be seen from the graph, the outlet from pond 1 was within the 35ppm suspended solids limit during the year. The outlet from pond 2 exceeded the limit on two occasions. Measures were put in place during 2010 to reduce the risk of suspended solids exceedences. These included addition of topsoil/compost and grass seed to exposed clay areas around future phases 4 and 5 and the vegetation of swales around the landfill area with wetland plants.

4.6.2 Groundwater

Groundwater monitoring was carried out on a monthly basis at BH1a, BH2, BH3, BH4, BH5, BH6As and BH6Ad, BH12s, BH12d, BH13, BH14 and BH15. Private wells and the site drinking water supply (canteen tap) were also sampled on a monthly basis during the year. Samples were analysed for the parameters and frequency specified in Schedule E5 of Waste Licence W0109-02. Monitoring wells BH7 BH8 and BH11 were lost early in 2007 due to Phase III construction. Bh8 and Bh11 were replaced in March 2008.

Results for key groundwater parameters are summarised in this report. Detailed results of all groundwater monitoring carried out during the year were previously been submitted to the Agency in quarterly reports.

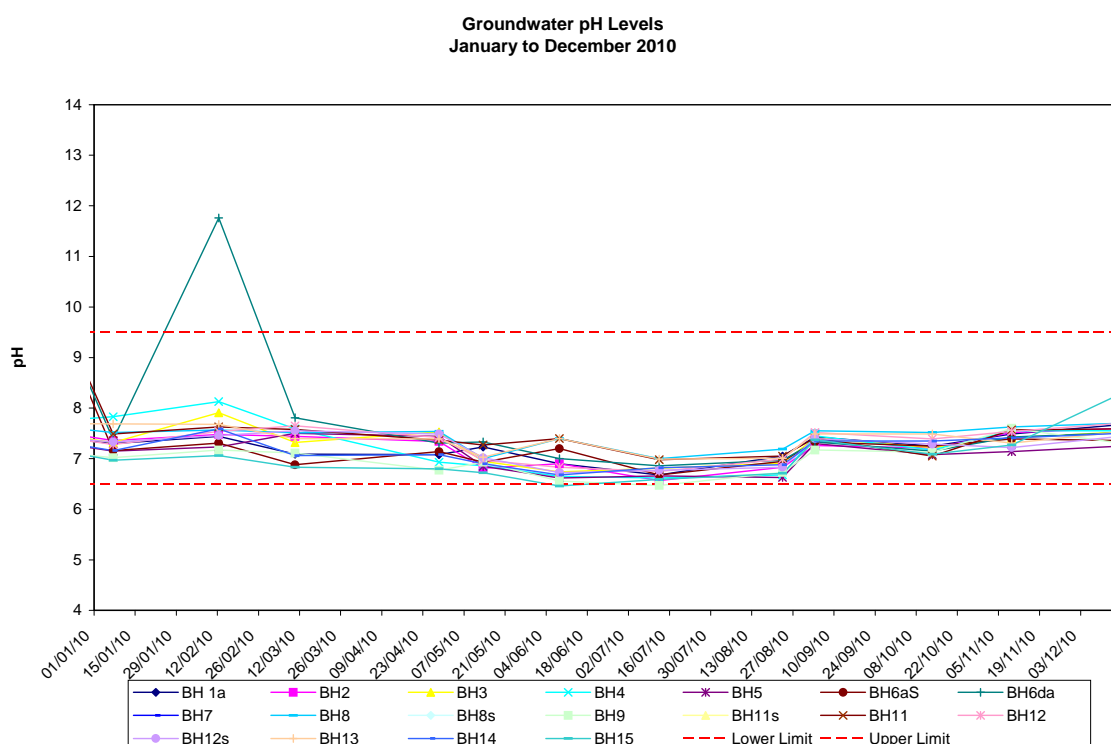
Where relevant limits exist, groundwater results are compared against the threshold levels specified in European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No 9 of 2010). The threshold levels given in columns 3 and/or 4

of schedule 5 are used for comparison. These thresholds are annual arithmetic mean levels. However for groundwater metals, fluoride, cyanide and sulphate, only one result is available for 2010 as these parameters are monitored annually in accordance with W0109-02.

4.6.2.1 Groundwater pH:

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

Figure 4.16



As can be seen from the graph, pH results were within the IGV range for all groundwater samples with the exception of results for BH6aD in February. pH, conductivity and ammonia levels for all three wells were very similarly elevated in the December monitoring round. Monitoring consultants for Clare County Council are of the opinion that these elevated results were due to sample container contamination (see incident report number 2009/07).

4.6.2.2. Groundwater Conductivity:

Groundwater conductivity results for 2010 are graphed in figures 4.17 and 4.18. The groundwater conductivity threshold of 1875us/cm is shown on the graphs for comparative purposes (as ms/cm).

Figure 4.17: Groundwater Conductivity Levels Overburden Wells

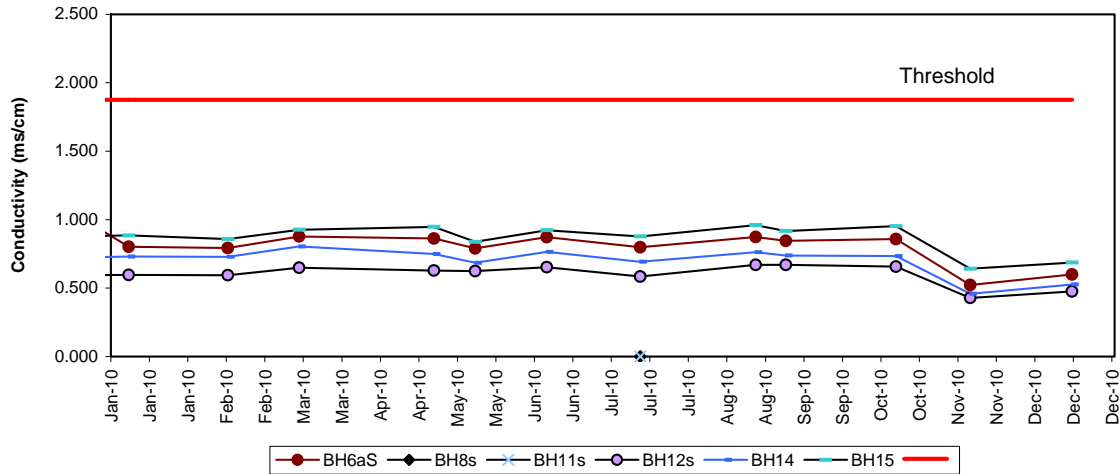
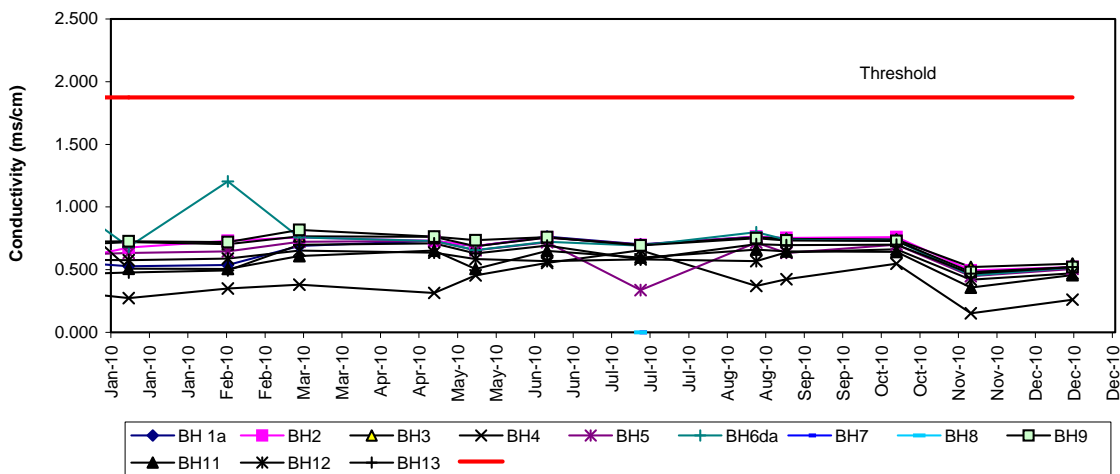


Figure 4.18: Groundwater Conductivity Levels Bedrock Wells



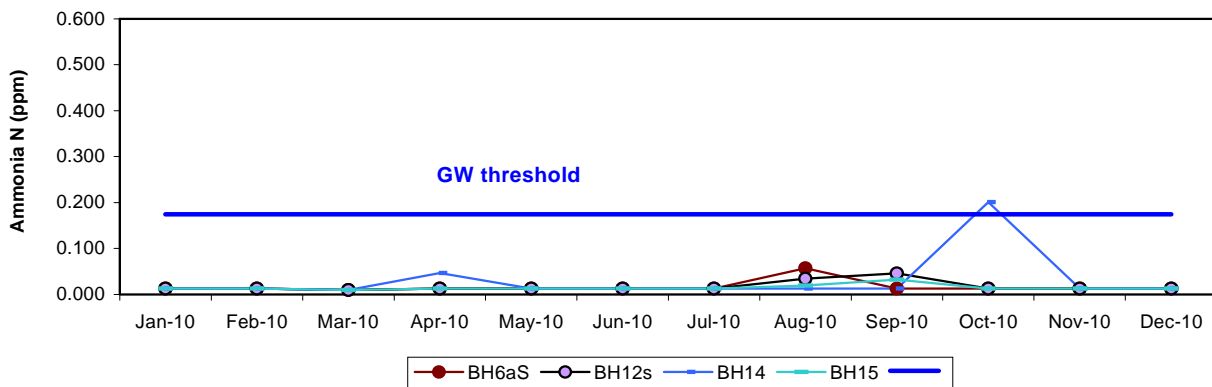
As can be seen from the graphs, groundwater conductivity levels were below the threshold throughout 2010. Laboratory results rather than field results are reported for July 2010 because the field results were incorrect (see letter to EPA dated 27th October 2010).

There have been occasional problems with elevated pH and conductivity levels in the area around BH6 in the past (see 2009 AER). However, conductivity levels at both wells were satisfactory for 2010.

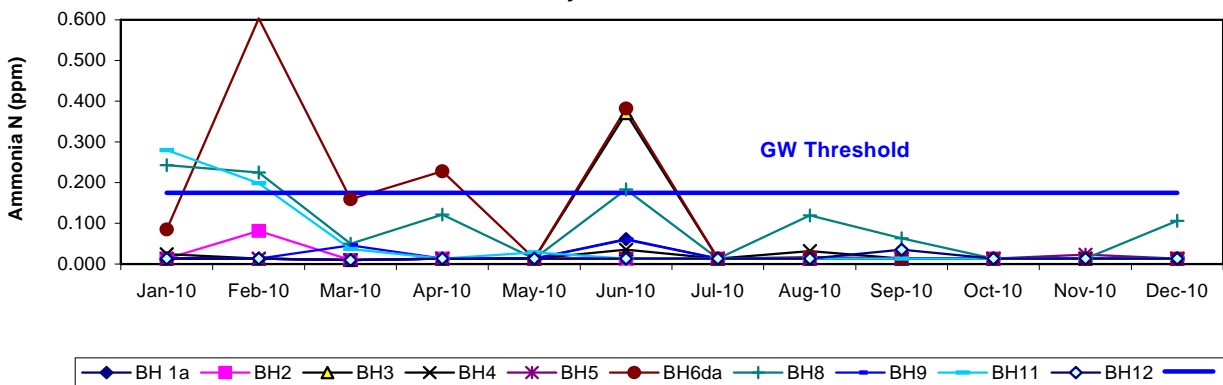
4.6.2.3 Groundwater Ammonia

Groundwater ammonia levels for 2010 are graphed below in figures 4.19 and 4.20. The groundwater ammonia threshold of 0.175ppm is shown on the graphs for comparative purposes (annual mean). An in-house groundwater trigger level of 1.5ppm ammonia was set in 2004 based on results obtained between May 2002 and December 2003. The trigger level was set under Waste Licence W0109-01, which defines a trigger level as “a parameter value which when achieved or exceeded requires certain actions to be taken”. All trigger levels will be reviewed shortly based on the eight years of data now available with lower method detection limits.

**Figure 4.19: Groundwater Ammonia Levels, Overburden Wells
January to December 2010**



**Figure 4.20: Groundwater Ammonia Levels, Bedrock Wells
January to December 2010**



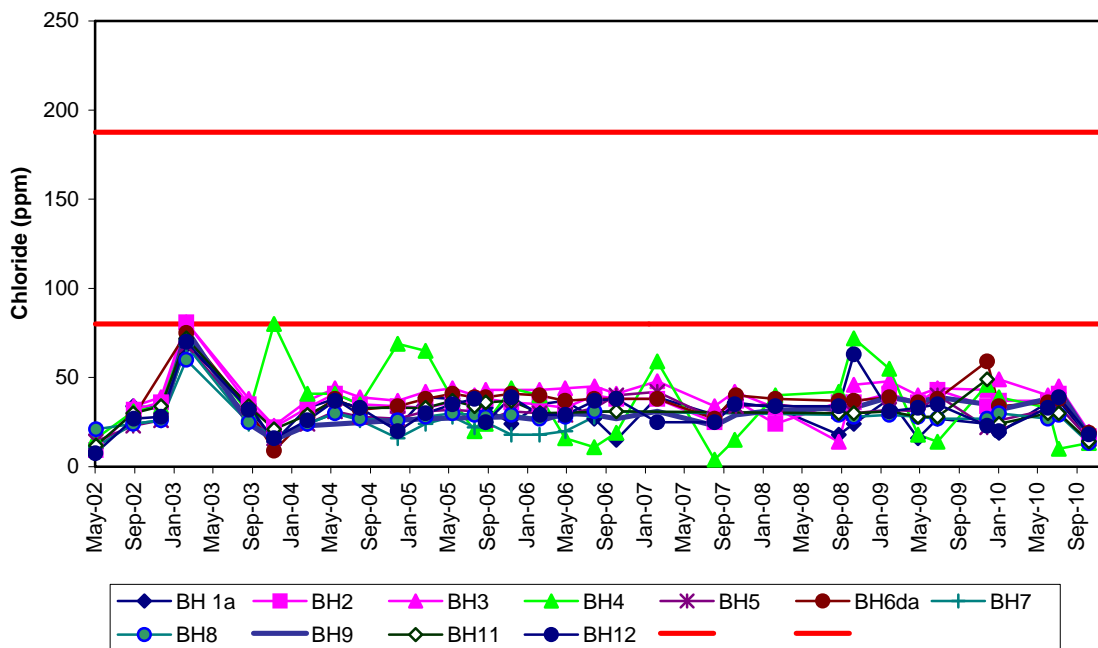
During this twelve-month reporting period, overburden groundwater ammonia levels ranged from <0.013 ppm (external laboratory method detection limit) to 0.2ppm (at BH14 in October 2010). Bedrock levels ranged from less than 0.013 ppm to 0.604 (at BH6aD in February 2010)

Groundwater ammonia levels have fluctuated since monitoring commenced at the facility in June 2002. Elevated results have been measured in the past at a number of wells, including upgradient bedrock well BH9. These results indicate elevated background groundwater ammonia levels, unrelated to landfilling activities but possibly due to the extensive afforestation of the site. Although individual results exceeded 0.175ppm on occasion, at BH2, BH6aD, BH8 and BH11, annual mean ammonia results for groundwater wells were within the threshold level.

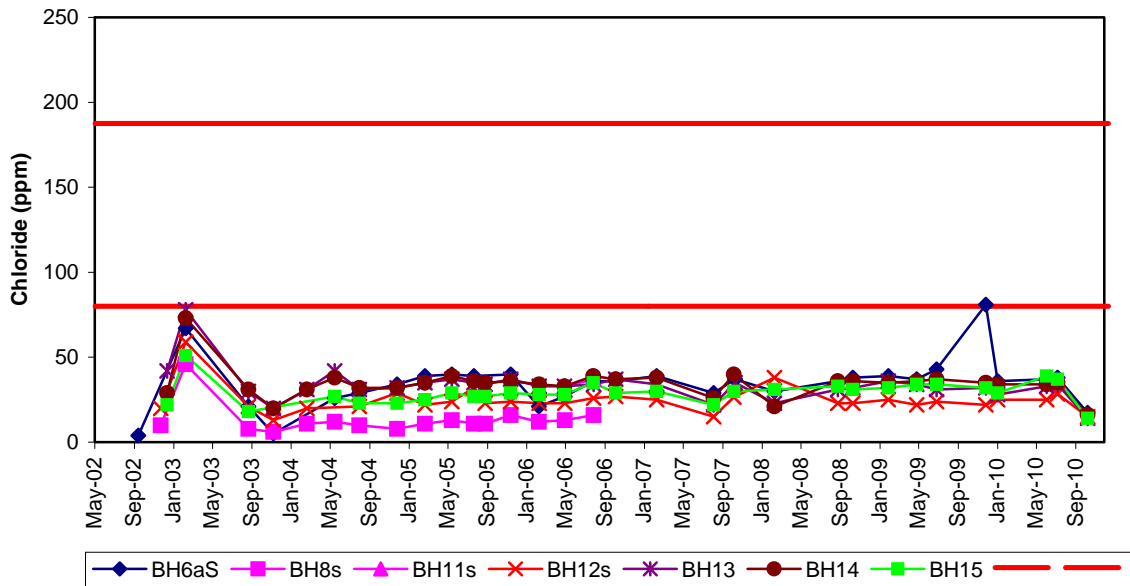
4.6.2.4 Groundwater Chloride.

Groundwater chloride levels from 2002 to 2010 are graphed in Figures 4.21 and 4.22. The chloride threshold of 187.5ppm is included in the graphs for comparative purposes. The in-house trigger level of 80ppm is also included in the graphs (to be reviewed during 2011 as discussed previously).

Figure 4.21: Groundwater Chloride Levels Bedrock Wells, 2002 to 2010



**Figure 4.22: Groundwater Chloride Levels
Overburden Wells, 2002 to 2010**



As can be seen from the graphs, groundwater chloride results have not exceeded either the threshold level of 187.5ppm or the 80ppm in-house trigger level since monitoring commenced at the site.

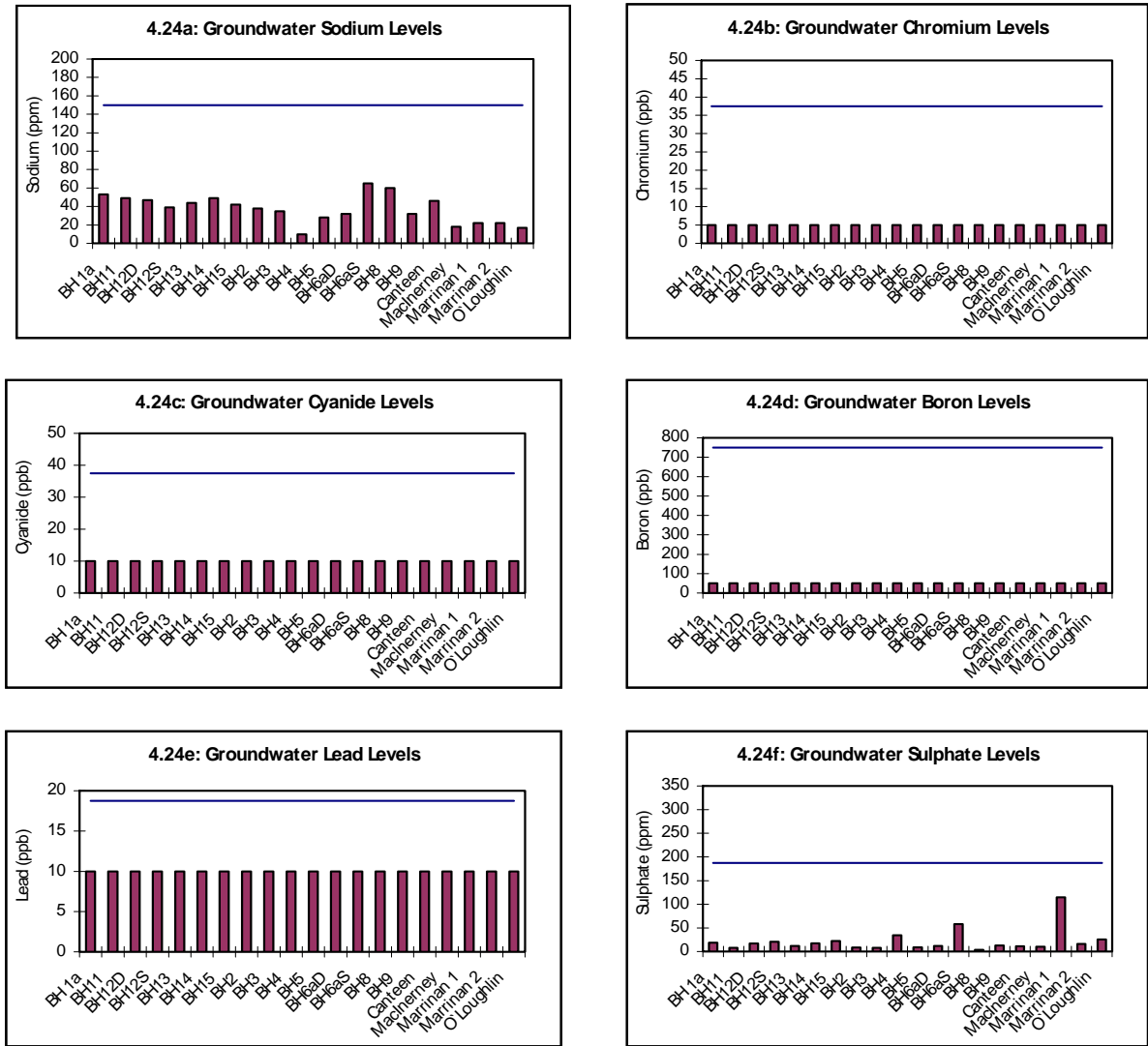
4.6.2.5 Groundwater volatile and semi-volatile organic compounds

Groundwater samples were analysed for VOC's and sVOC's in July 2010. Results were below method detection limits for all samples (<1ppb). Levels of dichloromethane, toluene and xylene were also below method detection limits (<1ppb).

4.6.2.6 Groundwater metals levels:

Groundwater samples were analysed for metals in July 2010. Results are graphed below in figures 4.24a, b, d and e.

Figure 4.24a to 4.24f; Groundwater metals and sulphate levels (2010)



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, chromium, boron and lead levels were all below the relevant groundwater threshold values. Results were also below method detection limits. Results for mercury and cadmium (not shown) were also below method detection limits but for these parameters, the methods were not sensitive enough to enable a comparison to be made with the groundwater threshold levels. Clare County Council will instruct our monitoring consultants to use a more sensitive method for the 2011 annual monitoring round for these parameters.

4.6.2.7 Other Groundwater Parameters:

Cyanide and sulphate levels are shown in the above graphs (fig 4.23c and 4.24f respectively). Results were below the groundwater threshold for both parameters.

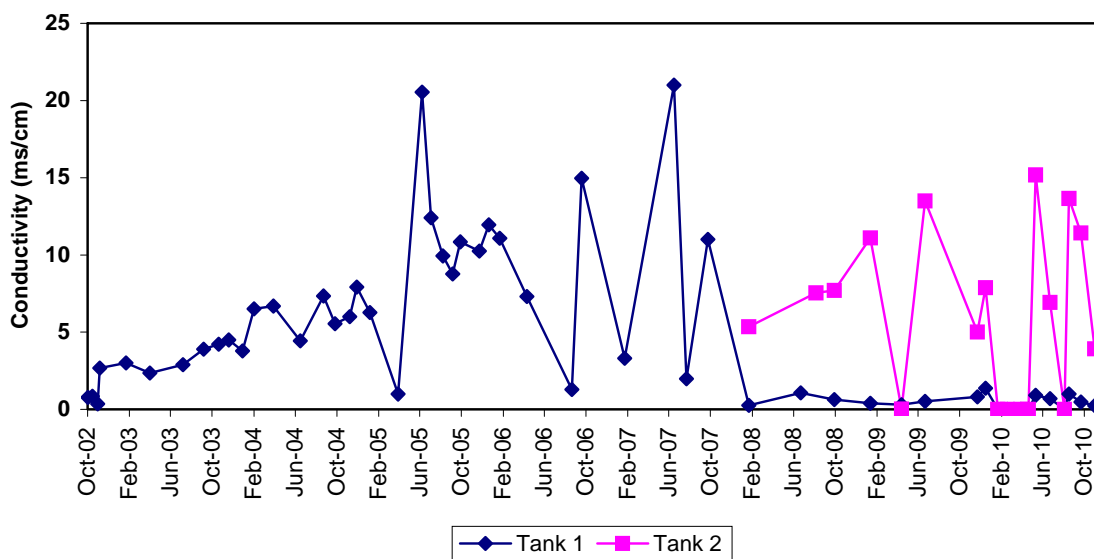
4.6.3 Leachate.

Leachate generated on site is discharged to one of two leachate storage tanks for transport offsite to a designated waste water 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 leachate tank (Tank 2) was installed in November 2007 as part of the phase 3 construction project. This tank now holds all leachate from the waste body and the older tank receives leachate/potentially contaminated runoff from the civic amenity area only. Results for both tanks for conductivity, BOD, COD and ammonia levels are graphed in figures 4.23 to 4.28 of this report. All results have previously been submitted in quarterly environmental reports for the facility.

4.6.3.1 Leachate Conductivity

Leachate conductivity levels are graphed in figure 4.24. As would be expected with the diversion of high strength landfill leachate away from the old leachate lagoon (tank 1) in early 2008, conductivity levels in this tank dropped dramatically in 2008 and remained low throughout 2009 and 2010. Higher levels were observed in the new tank. Leachate conductivity was within the range expected for landfill leachate.

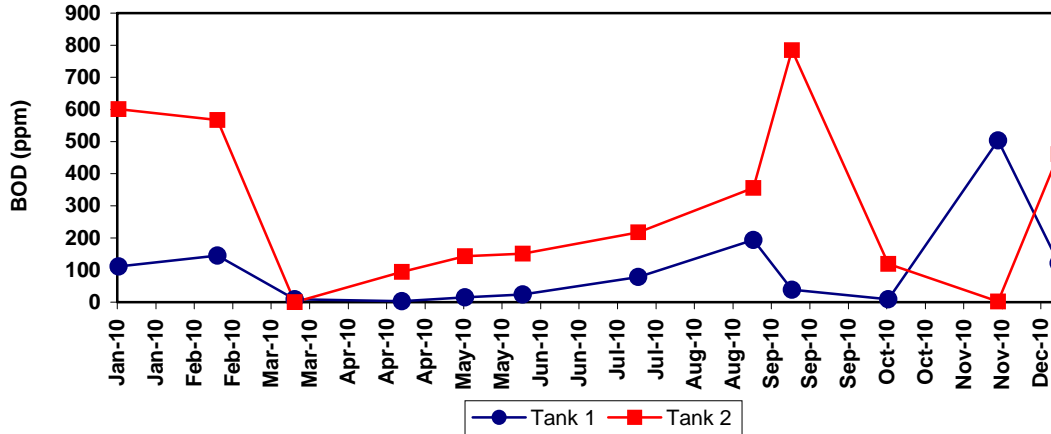
Figure 4.24: Leachate Conductivity Levels
2002 to 2010



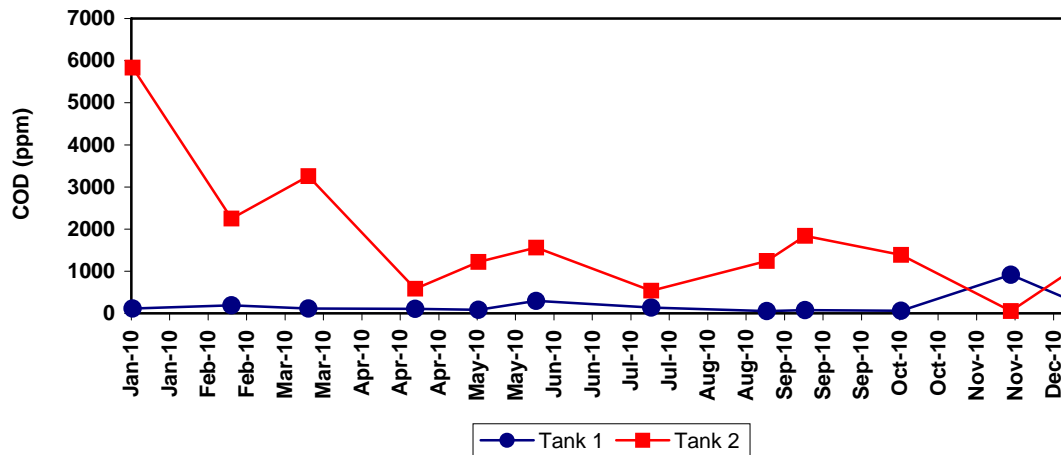
4.6.3.2 Leachate BOD and COD

Leachate BOD and COD results for 2010 are graphed below in figures 4.25 and 4.26.

**Figure 4.25: Leachate BOD Levels
January to December 2010**



**Figure 4.26: Leachate COD Levels
January to December 2010**



As can be seen from the graphs, with the exception of results for November 2010, BOD and COD levels in tank 1 were lower than tank 2. This is as expected given that the majority of the leachate flowing into tank 1 is uncontaminated surface water runoff from the civic amenity area. Clare County Council has requested approval from the EPA to modify the CA site leachate management system to allow areas of uncontaminated stormwater to discharge to surface water rather than leachate. This request excludes the compost facility and the offloading area around tank 2; runoff from these areas is potentially contaminated and must be treated as leachate.

The leachate BOD:COD ratio is a useful tool for assessing leachate biodegradability. Ideal ratios should be in the region of 0.3 or greater. Additional leachate samples were collected for BOD and COD analyses during 2010 in order to obtain more information on

leachate biodegradability because early 2009 results for the landfill leachate (tank 2) indicated a poor relationship. The ratio for landfill leachate from January 2009 to December 2010 is graphed below in figure 4.26 (3-pt moving average trendline also shown).

**Figure 4.27: Leachate BOD:COD Ratios
January 2009 to December 2010**

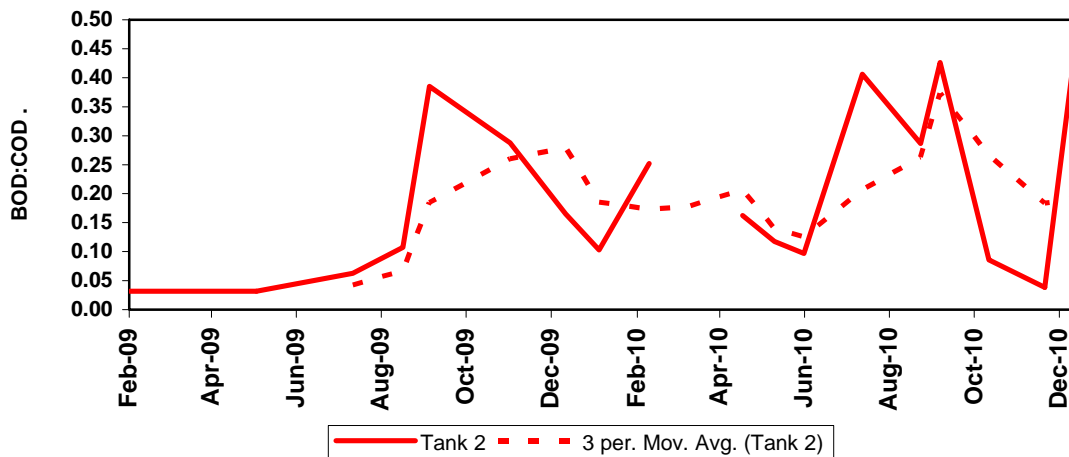


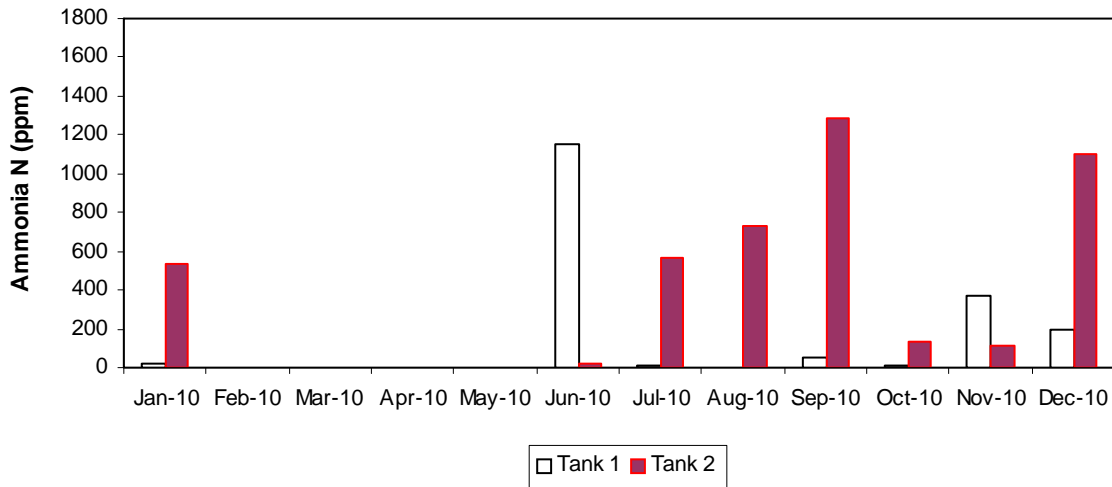
Figure 4.27 shows an increase in BOD:COD ratio for landfill leachate (tank 2) after August 2009. Levels are still slightly low (mean for 2010=0.2). The practice of recirculating leachate within the waste body was discontinued in 2008 because of the possibility that this practice could result in high strength leachate with reduced biodegradability (see 2008 AER). From early 2008 to late 2009, only relatively low strength leachate from tank 1 was used for recirculation. All leachate recirculation was discontinued in October 2009 as Clare County Council was of the opinion that it could be putting the gas collection network under pressure. At this time, there are no plans to recommence leachate recirculation until waste cells appear to be drying out. A rainfall irrigation system was installed in the most recently capped cell (cell 12) rather than leachate recirculation. This system will be used in the future if gas results or SCADA leachate levels indicate that the cell is drying out.

4.6.3.3 Leachate Ammonia.

Leachate ammonia levels for January to December 2010 are graphed below in figure 4.28. With the exception of one result for June 2010, ammonia levels in tank 1 were lower than for tank 2. This is due to the fact that the leachate discharged to tank 1 is CA site runoff rather than landfill leachate.

Leachate levels in tank 2 fluctuated considerably during this reporting period. This is most likely due to variation in rainfall/dilution.

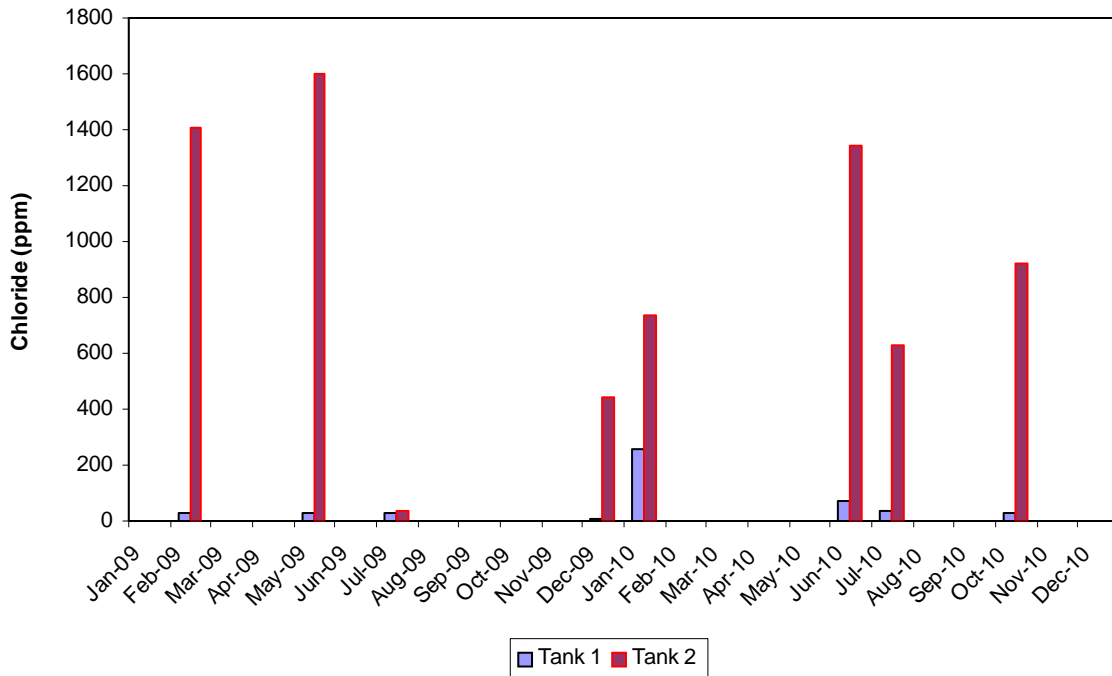
**Figure 4.28: Leachate Ammonia Levels
January to December 2010**



4.6.3.4. Leachate Chloride

Leachate chloride levels are graphed in figure 4.29 for 2009 and 2010. As discussed above, the reduced chloride results for tank 1 are due to the nature of the leachate discharging to this tank. The variation in levels in tank 2 is most likely due to rainfall.

**Figure 4.29: Leachate Chloride Levels
2009 to 2010**



4.6.3.5. Leachate Metals

Levels of metals measured in each of the leachate tanks are shown in figures 4.31 and 4.32 for 2010. Cadmium, copper and mercury (not shown) were below method

detection limits. Levels of all other metals were significantly higher in tank 2, as would be expected.

Fig. 4.31: Metals Levels in Landfill Leachate (2010)

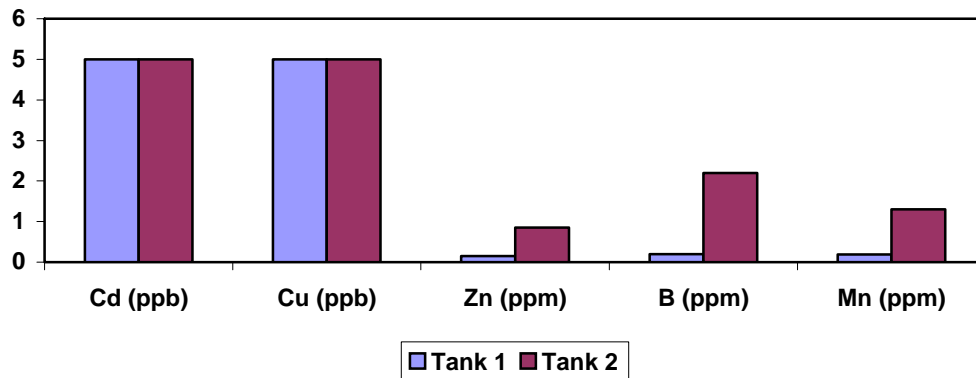
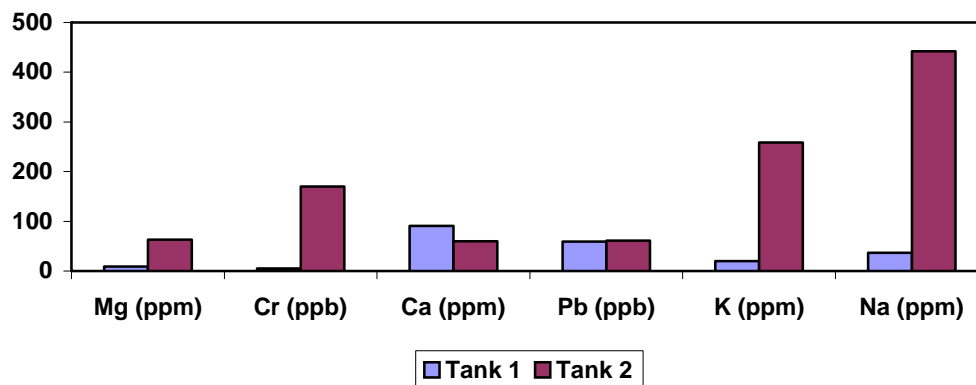


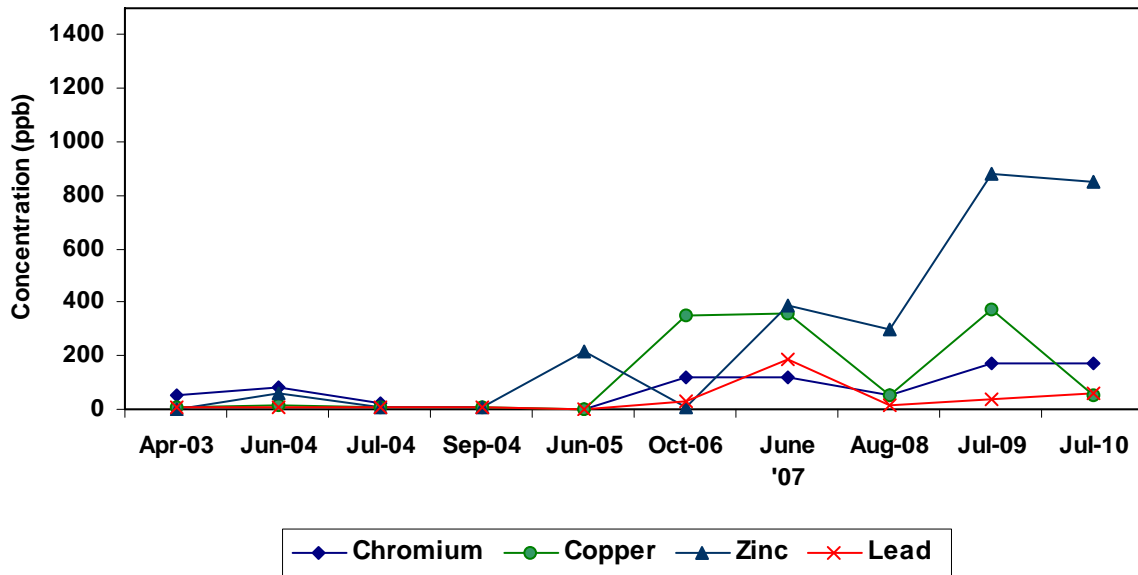
Fig. 4.32 Metals Levels in Landfill Leachate (2010) (cont'd)



Leachate metals levels have increased significantly since landfilling commenced in 2002. Results for chromium, copper, zinc and lead from 2003 to 2010 are presented in figure 4.33. Results prior to 2008 are shown for tank 1 as this tank received all landfill leachate until then.

As can be seen from the graph, zinc and copper levels increased significantly in 2008/2009, possibly due to the use of ASR as cover material during that period. Results for 2010 are slightly lower; ASR has not been used as landfill cover since December 2009.

**Landfill Leachate Metals Levels
2003 to 2010**



In summary, levels of all leachate parameters were within the ranges expected for municipal waste landfills. Levels were higher in the landfill leachate tank than in the civic amenity site runoff tank, as would be expected. BOD, COD, conductivity and ammonia levels varied significantly during the year, most probably due to changes in rainfall. Leachate would be expected to be more concentrated during dry weather.

4.7 Biological / Ecological Status.

4.7.1 Biological Monitoring:

Biological and ecological monitoring surveys were carried out during the year in accordance with Condition 9.15 of W0109-02. Details have been submitted in separate reports to the Agency. The report concludes that there is no evidence of an impact from the landfill on surface waters. Inagh river monitoring points retained a Q3-4 status. Streams in the vicinity of the landfill were Q3 at both upstream and downstream monitoring points.

4.7.2 Ecological Monitoring:

A general habitat and vegetation survey was carried out on the 27th August 2010. The survey concluded that while there are no habitats of significant conservation value within the site, the site does provide useful habitat for local wildlife including such species as the common frog and badger. Furthermore the diversity of species within the site is increasing as new habitats are being established (at the expense of clo-sed canopy coniferous forest).

Two countryside bird surveys were carried out during the year, on the 5th May and 5th June. These surveys have been conducted at the facility since 2002. Twenty-seven bird species were recorded in 2010, which is within the range of previous years. Two new species, lesser black-backed gull and collared dove were recorded in 2010, giving a combined total of 45 species recorded over the 9 years since 2002. The 2010 survey highlighted the collapse of several small resident species including wren, goldcrest and song thrush. This was attributed to the severe 2009/2010 winter.

Higher numbers of rooks were recorded in June 2010 although only 5 were recorded in the May survey. Numbers of other crow species were relatively low.

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

With the agreement of the Agency, the mammal survey frequency was reduced to once every two years in 2009. The 2010 survey commenced in December 2010 but was not completed until March 2011, due to adverse weather in December/January. A report of this survey is awaited.

4.8 EPA Site Visits

The following is a summary of EPA site visits made during 2010:

EPA monitoring personnel were on site on the 23rd March 2010 to carry out groundwater, surface water and gas monitoring at the facility. Results were similar to those obtained by Clare County Council and by TMS Environment on behalf of the council.

An unannounced site visit was made by the facility's EPA inspector in August 2010. Odour Monitoring Ireland were also on site on that date. They were engaged by the EPA to undertake a surface VOC emissions survey. Potential problems areas highlighted during the VOC survey were addressed by Clare County Council.

EPA staff were on site again in December 2010 to assess the facility's ELRA document.

The EPA reviewed waste licence W0109-01 in 2009 and a revised licence W0109-02 was issued in March 2010.

5. WORKS PROGRAMME 2010/2011

5.1 Development Works carried out in 2010

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 2010.

Site Development Works	Completion Date
Installation of sacrificial horizontal gas extraction system in active cell (cell 12) (including temporary vertical wells)	Ongoing throughout 2010
Installation of temporary clay capping to side slope of cell 12	Ongoing as cell was constructed
Installation of clay cap on cell 11	Completed end of March 2010
Seeding of cell 11 cap	March/April 2010
Seeding other exposed clay areas on site	April/May 2010
Extension of gas collection network including installation of new manifold and knockout pot for cell 11.	Completed March 2010
Installation of rainwater irrigation infrastructure in cell 12 (for future use)	November 2010
Installation of permanent gas extraction wells in cell 12	Completed 5 th November 2010
Installation of LLDPE gas barrier on cell 12 side slope to bench height.	Completed July 2010
Installation of LLDPE gas barrier to cell 12 top and side slopes	Commenced 20 th December 2010. Completed January 2011.
Vegetation of swales around landfill area.	May 2010
Installation of sealed end caps on leachate riser pipes for cells 1, 5, 10 and 11	Completed March 2010

The bund integrity and water tightness test was last carried out in December 2009. This test is due to be repeated during 2012.

Site development works that will be carried out in over the next 12 months are outlined in section 5.2.

5.2 Proposed Development Works 2011

The proposed development works for 2011 are set out in Table 5.2 below:

TABLE 5.2: PROPOSED DEVELOPMENT WORKS FOR 2011

Site Development Works	Date
Installation of rain flaps on side slope of cell 13	January 2011
Installation of horizontal extraction system in cell 13	Ongoing as cell is constructed
Installation and connection of vertical wells within cell 13o	March 2011
Installation of final clay cap on cell 12	April/May 2011
Seeding of cell 12	June 2011
Extension of gas trunk main to cell 12	May 2011
Permanent connection of 9 vertical wells in cell 12.	May 2011
Diversion of CA site stormwater from leachate collection system to stormwater management system (upper level only).	April/May 2011
Application to divert part of lower level CA site stormwater away from leachate collection system.	September/October 2011
Diversion of lower level CA site stormwater from leachate collection system*.	Before year-end.
Cleaning of stormwater ponds	August 2011

*Note *: assuming EPA approval is received.*

5.3 Progress to Site Restoration

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

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

A revised closure plan will be issued during 2011 to address the premature closure of the landfill after completion of filling of phase 3.

By the end of December 2010, a permanent cap was in place on the following cells:

- Cells 1 to 5 of Phase 1.
- Cells 6 to 9 of Phase 2.
- Cells 10 to 11 of Phase 3.
- Cell 12 of phase 3 (application of permanent cap commenced in December 2010).

To date all capped cells have been vegetated with meadow grass. Landscaping contractors have been retained to maintain the vegetation cover on the screening embankments for phases 3 to 5. The phase 4 and 5 embankments were constructed as part of the phase 3 development works during 2007, with extensive landscaping of the embankments in late 2007/early 2008.

5.4 Site Survey and Remaining Void Space

The site is surveyed each year to ensure that the landfill profile does not exceed the licence specification. The most recent topographical survey submitted to the EPA was in December 2009. The 2010 profile was delayed until late February 2011. This will be submitted to the EPA as soon as it is available.

Landfilling commenced in cell 13 on the 13th December 2010. This cell is estimated to have capacity for 34,000 tonnes of waste. Clare County Council anticipates that this cell will be filled before the end of November 2010. This will complete the filling of phase 3 of the landfill. At present, Clare County Council does not have plans in place for the construction of phases 4 and 5. Therefore, landfilling activities at this site will cease indefinitely in December 2011.

6. FINANCIAL ASPECTS

6.1 Annual Budget and Operating Costs

The annual budget for the Central Waste Management Facility for 2010 is outlined in Table 6.1 below.

TABLE 6.1: SUMMARY OF FINANCIAL PROVISIONS 2010

Item	2010 budget
CWMF - Landfill operation	€1,309,596
CWMF - Recycling centre operation	€307,432
CWMF - Compost operation	€32,735
Total	€1,649,763

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* per tonne of waste accepted for disposal at the landfill is allocated to the Community Fund (*start 2002 and index-linked). The fund will be available as long as the facility continues to accept waste for on-site disposal. Eligible local communities to benefit from the Community Fund are Inagh, Cloonanaha and Kilnamona.

A structure was put in place for the distribution of the Fund, which was agreed with the Community Liaison and Monitoring Committee (CLMC). A weighting criteria ranging between 5 to 10 with projects nearest to the facility carrying the greatest weighting was also adopted.

Following a review on the Community Fund carried out by Exodea Europe Consulting Ltd, it was recommended that three members of the Community Liaison Monitoring Committee sit on the adjudication panel along with three external members. Members from the Community Liaison Monitoring Committee include Sheila Mc Tighe, Tom Long and Michael Hehir. Catherine Dalton, Mary Immaculate College, University of Limerick, (Chairperson), Gerard Kennedy, Rural Resource Development Ltd and Mairead Corbett, Clare County Council represent the external members. The first meeting of the adjudication panel to discuss the distribution of Tranches 4 and 5 of the Community Fund took place in March 2010 and has continued throughout 2010. A total amount of €140,775 is available for distribution for years 2007 and 2008. The decision of the panel is awaited.

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 in April 2009???????. During 2010, the EPA carried out an assessment of the ELRA's completed by a number of sites. A report on this assessment will be issued during 2011. Clare County Council will review its site ELRA during 2011 in view of the proposed changes to site operation (i.e., proposed closure of the facility on completion of phases 1 to 3)

7. REVIEW

7.1 Nuisance Controls.

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

7.1.1 Litter Control

Litter fencing is installed around the active cell to minimise windblown litter from the cell. Waste compaction and the use of adequate cover material also reduce the incidence of windblown litter. The active cell is closed during high winds. Perimeter fencing also intercepts any wind-blown litter. Areas within the site, including fencing, are inspected each day for litter and records are kept. Loose material is gathered and disposed of regularly to keep the site tidy. The main roads outside the facility are checked for litter during the daily odour patrol and cleanup is carried out as required. One of the site conditions for waste acceptance is that all waste is completely covered en route to the facility.

7.1.2 Birds

Clare County Council currently employs Falcon Bird Control to control bird activities on site. Both active and passive methods are employed. Falcon Bird Control maintains controls on site from dawn to dusk by way of flash kites, dummy launchers, ranger kites, acoustic distress calls and birds of prey. Birds of prey are flown daily (weather permitting) to discourage birds from congregating on site. An operational report is completed each day and a file copy kept at the site office. Bird scavenging is minimised by the compaction and daily covering of waste.

7.1.3 Vermin

Curtin Pest Control are employed by Clare County Council to control vermin. Daily covering of waste ensures that food waste is unavailable to minimise nuisance from vermin. The use of daily/weekly cover also mitigates against colonisation of the landfill active cell by flies. Spraying with an approved insecticide is utilised as required by trained personnel to further control fly/wasp levels. A log is kept of insecticide spraying. Curtin Pest Control conducts 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 & the EPA will be contacted in the event of any fire incident.

7.1.5 Vehicles

All vehicles leaving the active tipping area are directed to use the dry-wheel shakeout and wheel wash unit prior to leaving the facility. In the event that mud and debris is carried from the active site onto the main access road due to inclement weather conditions, the site manager will arrange that the road is cleaned. Internal roadways are brushed or wetted as required in dry periods.

All roads around the Civic Amenity area, the access roads to the flare and the old stormwater pond are tarred. Access roads around the active cell are stone-coated and are cleaned/scraped with fresh stone applied as required.

7.1.6 Odours

Waste odours:

The haul road into the active cell is extended as far as possible into the cell in order to reduce double handling of waste and minimise waste odours. Covering the waste on a daily basis with suitable material also helps to control waste odours from the active cell. The waste is covered during weekdays/weekends with a combination of suitable site clay, wood ash and a fabric material as a base (Geopoly) to minimise odours. Up to November 2010, ASR was also used in combination with the wood ash. Wood chip is used as a biofilter where required by placing directly onto particularly odorous loads to filter the odour

and to assist in waste odour management. Control of odour is also achieved by minimising the active cell area.

Landfill Gas Odours:

Landfill gas odours from within the active cell are controlled using a sacrificial horizontal gas extraction system to draw gas to the flare. Vertical wells were also used during 2010 to improve gas extraction. A clay cap is placed on the side slopes of the active cell as the cell is constructed to minimise gas migration through the side slopes.

For completed waste cells, a gas barrier membrane (LLDPE) is installed on all top and side slopes to control gas release from within the cells. This membrane is sealed by welding to the adjoining LDPE/HDPE liners. Vertical gas extraction wells are installed within the filled cells and connected to the gas collection network to draw gas out of the cells to the flare. Capping of cell 12 commenced in December 2010 in line with this methodology. A total of nine gas wells were drilled in the cell to depths of up to 10m to draw gas to the temporary and permanent flares. Large diameter pipes (110mm ID) are used to connect waste body wells in newer cells to the gas collection network and all connections are welded to ensure integrity of the collection network.

The flare has been upgraded on two occasions since installation. It was upgraded from 500m³/hr to 750m³/hr in August 2006 and was again upgraded in May 2008 from 750m³/hr to 850m³/hr to assist with the management of existing and future landfill gas production.

A daily odour patrol is carried out to investigate whether odours are present on-site and off-site. Results of all odour patrols are logged in a site folder. Where an offsite odour is detected, an incident report is issued to the Agency and measures are taken to deal with the odour. Independent odour patrols are also carried out on a random basis, generally twice per month, by Environmental Health Inspectors of the Health Services Executive based in Ennis.

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. On very dry, windy days, this is done throughout the working day.

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 2010 were within the ambient dust limit of 350mg/m² per day.

7.1.8 Visual Intrusion

The principle method of limiting visual intrusion is by the retention of a screening belt of trees around the site. The site entrance and access roads are also landscaped to minimise visual intrusion. The earthen embankments surrounding the landfill area to the east, west and north of the site were raised some years ago and new screening embankments were constructed as part of the phase 3 development works. These new embankments enclose future phases 4 & 5. All embankments have been grassed and planted with Scots Pine and Sitka Spruce. External contractors carry out twice- annual maintenance of the landscaped embankments.

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 comply with licence limits (see section 4.5 for further information).

7.1.10 Complaints Register

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

7.2 Environmental Objectives

The site EMS was updated during 2010 to reflect changes in operation of the facility since the last update. The schedule of objectives and targets for 2010/2011 are outlined in the EMS and are also summarised below:

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

The list of tasks identified in the 2009 AER in relation to gas abstraction from the active cell are summarised below in table 7.1. The table also includes comments on whether or not these tasks were completed.

TABLE 7.1: PROGRESS REPORT ON 2010 LIST OF TASKS ASSOCIATED WITH IMPROVED GAS EXTRACTION FROM CAPPED AND ACTIVE CELLS.

Task No.	Description of Task	Completion Date
1	Install end caps on all leachate riser pipes	Completed for cells 1,5,10,11,12,13 during 2010. Different type of riser cap was required for cells 6,7,8,9. A specially designed end cap was provided by Egeplast in early 2011. All end caps in place by end of February 2011.
2	Investigate options for capping of side slope of cell 12	Completed within specified timeframe.
3	Install welded 110mm lines for gas collection network, cell 11.	Completed within specified timeframe.
4	Apply to EPA for permission to carry out capping of cell 12 side slope.	Completed within specified timeframe.
5	Advertise for capping contractor	Completed within specified timeframe.
6	Carry out side slope capping up to bench height	Completed within specified timeframe. Extraction pipes were installed behind the liner to extract gas to the flare.
7	Investigate options for built well installation and apply to EPA for approval	Completed within specified timeframe.
8	Install wells, subject to approval being received	Completed within specified timeframe. Wells were installed in early November 2010 while cell 12 was still being filled.

Additional measures were introduced during 2010 to optimise gas extraction from cell 12. These measures included installation of a temporary flare in September 2010 for the purpose of active cell odour control, daily gas field balancing, installation of additional clay cap on the side slope and top slope of the active cell and the expediting of all lining preparation works, enabling cell lining to commence one week after completion of filling of the cell.

Further improvements to active cell gas extraction are planned for 2011 (cell 13) as follows:

TABLE 7.2 ADDITIONAL TASKS RE INSTALLATION OF VERTICAL WELLS WITHIN CELL 13, FOR 2011.

Task No.	Description of Task	Completion Date
1	Submit SEW to EPA for well installation in cell 13.	January 2011
2	Commence installation of well/s	Ongoing while cell is constructed
3	Connect well/s	First well to be connected during March 2011.

TABLE 7.3 ADDITIONAL TASKS RE INSTALLATION OF NEW HORIZONTAL GAS EXTRACTION SYSTEM, FOR 2011:

Task No.	Description of Task	Completion Date
1	Submit SEW to EPA for horizontal gas extraction system.	January 2011
2	Commence installation of gas collection network.	Ongoing while cell is constructed
3	Modify main gas line to enable horizontal wells to be connected at southern slope of cell. SEW may be required. Dewatering points to be included	May 2011
4	Connect wells	Ongoing from May 2011

Installation of end caps on riser pipes for cells 6, 7, 8 and 9.

To be completed by March 2011.

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

This objective was proposed to assist in achieving compliance with condition 1.15.1 of revised licence W0109-02 (i.e. to achieve required targets in terms of diversion of biodegradable waste from landfill).

Progress against this objective is outlined in table 7.4 below:

TABLE 7.4: PROGRESS REPORT ON 2010 TASKS ASSOCIATED WITH PROVISION OF SEPARATE ORGANICS COLLECTION CONTAINER AT THE CIVIC AMENITY SITE.

Task No.	Description of Task	Completion Date
Task 1	Investigate options for collecting/treatment of organics waste	March 2010
Task 2	Carry out feasibility study on various options	July 2010
Task 3	Select most suitable option and apply for approval to implement	Tasks 3 to 5 were put on hold in view of possible early closure of CWMF landfill. Post closure, all waste to be transported to a materials recovery facility for treatment prior to disposal.
Task 4	Implement option	
Task 5	Assess effectiveness of system by means of customer surveys etc	

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

Leachate generated on site is tankered to waste water treatment plants at Lisdoonvarna, Sixmilebridge and Limerick Main Drainage for treatment. During 2009, a total of 24,000 tonnes of leachate was removed from the CWMF for treatment at these facilities. Clare County Council identified a number of actions to reduce leachate volumes. Actions and progress are discussed below:

TABLE 7.6. PROGRESS REPORT ON 2010 TASKS ASSOCIATED WITH LEACHATE REDUCTION PROJECT.

Task No.	Description of Task	Comments/Completion date
1	Install rainflaps on side slopes of capped cells.	Ongoing for relevant side slopes as cells are filled.
2	Investigate feasibility of diversion of surface water from CA site.	Completed by February 2010
3	Apply for EPA approval re task 2.	Completed by February 2010
4	Implement modifications (assuming approval is granted)	Phase 1 (higher level of CA site) to be completed April/May 2011.
5	Carry out feasibility study on the treatment of leachate on site (as required during EPA audit of December 2009)	Currently under investigation. W0109-02 prohibits the discharge of treated leachate from the site so pre-treatment rather than full treatment is being investigated to minimise the impact on receiving WWTP's.

An additional leachate reduction measure was implemented during 2010, with the installation of kerbing at strategic locations on the access road within the civic amenity site to eliminate a problem of rainwater flowing onto the concrete (leachate collection) areas.

Additional measures proposed under this objective for 2011 are outlined in table 7.6 below:

TABLE 7.6. ADDITIONAL TASKS ASSOCIATED WITH LEACHATE REDUCTION PROJECT, FOR 2011.

Task No.	Description of Task	Completion Date
1	Installation of rainflaps on side slope of cell 13	January 2011
2	Divert higher level CA site runoff (as described in table 7.5)	To be completed April/May 2011.
3	Submit proposal for diversion of rainwater from sections of the CA site lower level.	September/October 2011
4	Implement modifications (assuming approval is granted)	Before end of 2011.
5	Monitor infiltration rates into capped cells via SCADA pump data.	Ongoing throughout 2011
6	Investigate/remediate cells identified as having high infiltration rates (i.e. >10%)	Late 2011/early 2012

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

A preliminary report on landfill gas utilisation at Ballyduff Beg was completed by Tobin Consulting Engineers on behalf of Clare County Council in 2006. A supplementary report was issued in 2008, taking into account targets for diversion of biowaste from landfill and the impact of this on methane generation at the facility. An application was submitted to ESB Networks in August 2010 for a grid connection for a 1MW gas engine at the facility. Clare County Council is committed to pursuing this project to determine whether an engine would be commercially viable and environmentally saleable for this facility. Tasks associated with this project for 2011 are outlined below:

TABLE 7.7: PROGRESS REPORT ON 2010 TASKS ASSOCIATED WITH INSTALLATION OF GAS ENGINE.

Task No.	Description of Task	Completion Date
1	Evaluation of the future gas generation potential of the site, taking into account reduced waste intake and the diversion of biowaste, pumping trials, gas quality and contaminants-July.	Initial report prepared by TES on behalf of CCC. Gas siloxane content established in July 2010.
2	Investigate power generation capacity based on information obtained from task 1-August	See comments under task 3, 5, 6.
3	Determine the export potential of energy generation on site and acquire grid connection for same -ongoing	A connection agreement offer was received in 2010, with a cost of close to 1m euro.
4	Identify commercial model for electricity generation on site and identify appropriate supplier, including seeking expressions of interest from appropriate bodies-September 10	Completed by TES on behalf of CCC.
5	Determine cost element associated with grid connection/civil and electrical works/licence purchase/agreements with land owners etc-July-September	See comments under task 3, 5, 6.
6	Decide on course of action (with a view to installing early in 2011) based on commercial viability and environmental saleability of project	This project is still under active consideration and Clare County Council hopes to proceed as soon as an economically feasible option can be found. This may involve utilising an energy services company (ESCO).

TABLE 7.8: ADDITIONAL TASKS ASSOCIATED WITH INSTALLATION OF GAS ENGINE, FOR 2011.

Task No.	Description of Task	Completion Date
1	Final evaluation of gas generation potential (quality and quantity) over the next two to three years, taking into consideration the early closure of the landfill in November/December 2011.	September/ October 2011
2	Sizing of appropriate engine based on gas generation potential identified in task 1.	November 2011
3	CCC to invite expressions of interest from suitable parties to utilise LFG possibly in combination with another alternative energy technology.	December 2011

7.2.5. Objective 5: Progress ISO 14001.

The purpose of Objective 5 (achieving ISO 14001) was to provide external validation of the EMS already in place at the facility. This objective was set assuming the ongoing operation of the landfill. However as the landfill is due to close before the end of 2011, this objective is no longer as relevant. Clare County Council believes that ongoing review and revision of the existing EMS will be sufficient to comply with regulatory requirements for an aftercare landfill facility, without going to the additional expense of implementing and maintaining ISO 14001 standard. Progress against the 2010 tasks list is described below in table 7.9. A summary of SOP's updated during 2010 is included in table 7.9. Further details on site SOP's are provided in appendix 8.7.

TABLE 7.9: PROGRESS AGAINST 2010 TASKS ASSOCIATED WITH SETTING-UP/MAINTAINING ISO 14001.

Task No.	Description of Task	Completion Date
1	Update all site procedures to reflect new requirements of revised Waste Licence	Initial SOP review completed by January 2010. Further revisions completed during 2010 as required. Four new procedures were prepared during 2010 as follows: <ul style="list-style-type: none"> i. Procedure for handling, storage and deposition of wood ash ii. Procedure for leachate handling. Procedure for removal of recyclable waste from CA site. iii. Procedure for application of landfill cover.
2	Arrange for site visit/assessment by NSAI	Tasks 2 to 4 have been put on hold in view of early closure of CWMF landfill.
3	Implement corrective actions/measures identified in assessment	
4	Registration Assessment, formal registration	

A summary of the SOP revisions is provided in appendix 8.7.

7.3 Programme of Public Information

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

- A copy of the waste licence.
- All correspondence from the Agency relating to the facility.
- All correspondence from Clare County Council to the Agency relating to the facility.
- Copies of quarterly monitoring reports.

- Copies of annual environmental reports (AER).
- Copy of all procedures relating to the facility.
- Incident reporting files.
- Complaints Register.

A community liaison and monitoring committee (CLMC) was established when the facility opened. The purpose of the CLMC is to provide a forum for the local community to raise issues in relation to, and to receive regular updates on, the operation of the facility. The committee consists of 13 members of the local community and local councillors. The CLMC meets every one to two months in the Inagh National School hall. The CLMC meetings afford members of the public the opportunity to ask questions, to comment on site operation and to seek information/clarification as required. The meeting also enables Clare County Council to pass on any information regarding the operation of the facility during the preceding month and regarding planned future projects.

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

7.4 Management and Staffing Structure

The current management structure is detailed in Appendix 8.3

7.5 Environmental Incidents and Complaints

Condition 3 of the waste licence requires that the licensee shall make written records of environmental incidents. When incidents arise, completed incident reports are forwarded to the EPA by fax and hard copy. Details of recordable incidents and complaints during the reporting period are 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 DURING 2010

Nature of Incident	Number of Incidences
Odours detected offsite during daily odour patrol:	28
Leachate levels:	1
Surface water suspended solids:	2
SCADA / Equipment malfunction:	5
Flare downtime:	0
Perimeter well gas levels:	12
Other	4

Condition 3 of the waste licence requires that the licensee shall make written records of all complaints. Details of complaints received during 2010 are summarised below.

TABLE 7.10: RECORDED COMPLAINTS DURING 2010.

Number of Complaints*	Nature of Complaint
17	All relating to offsite odours. 65% of complaints were received between October and November 2010 and were directly attributable to gas from the active cell, which was open for longer than normal due to a drop in waste intake to the facility.

Note: For four of these complaints, the complaint was received via the monthly CLMC meeting and may have referred to a number of separate instances of offsite odour.*

Corrective actions were taken in response to incidents and complaints in accordance with the requirements of the licence and with the site Corrective Action Procedure. Full details of corrective actions taken in response to the cell 12 gas problem have been submitted to the EPA in previous communications.

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 sheet 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
- Inert rubble

7.6.2 Composting Area

The composting of green garden waste commenced in January 2006. Members of the public bring clean green waste e.g. cut grass, hedge and bush clippings etc. to the CWMF CA site and to the CA sites at Lisdeen, Shannon and Ennis. The material is processed on site to remove litter and other unsuitable items before being placed in one of two aerated static piles. Air is continuously drawn through the piles by means of an air blower to provide the oxygen needed by the microorganisms breaking down the waste. The temperature of the material is monitored weekly to maintain optimum composting conditions. Each pile is turned to ensure even decomposition. After approximately twelve weeks, the material will have formed a mature compost that is used within the site as a soil conditioner. This compost is tested on a quarterly basis in accordance with W0109-02). The CWMF has accepted approximately 1500 tonnes for composting since 2006. 405 tonnes were received in 2010.

7.7 Report on Biodegradable Waste Diversion from Landfill

The process of submission of quarterly returns to the EPA on the biodegradable municipal waste (BMW) content of waste landfilled commenced in July 2010. The target of 47% BMW content is set in W0109-02. Clare County Council achieved an average of 53.28% BMW content in Quarter 3, 2010 and an average of 48.3% in Quarter 4. The average for the 6-month period July to December 2010 was 50.31%.

The feasibility of providing a food waste container in the civic amenity area for use by cold callers to the site was investigated in 2010. However, the decision taken during 2010 not to commence construction of landfill phases 4 and 5, means that the CWMF landfill will be closed before the end of 2011. Any waste received from the public at the CWMF CA site will be collected by a third party for treatment prior to disposal. This made it difficult to justify the additional cost associated with provision of a separate food waste receptacle within the CA site. One of Clare County Council's main waste customers is now bringing more than 90% of its waste as residual waste after treatment rather than directly from kerbside. This, combined with the acceptance of biostabilised residual waste as landfill cover, should contribute significantly towards achieving the target of 47% BMW. In addition, the waste enforcement section of Clare County Council is actively enforcing the Food Waste Regulations to ensure that commercial facilities carry out food waste separation at source.

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

The overall aim of the Landfill Directive is to prevent or reduce as far as possible negative effects on the environment, in particular the pollution of surface water, groundwater, soil and air, and on the global environment, including the greenhouse

effect, as well as any resulting risk to human health, from the landfilling of waste, during the whole lifecycle of the landfill. The Landfill Directive represents a change in the way that waste is managed, requiring waste minimisation and increased levels of recycling and recovery. The Central Waste Management facility meets the following parameters outlined in the Directive: It is an engineered, non-hazardous waste landfill and so meets the requirements of such a facility, as outlined in Annex I of the Directive. It is licensed as required under Article 7 of the Directive and managed in accordance with Article 8-13 of the Directive. The facility has a civic amenity area for acceptance of recyclable waste, household hazardous waste and household construction and demolition waste and green waste for on site recovery. The site is managed in such a way as to maximise recycling by the public and by commercial operators (see also sections 7.7 and 7.9).

7.9 Statement on the achievement of the waste acceptance and treatment obligations of the waste licence.

Waste licence W0109-02 imposes conditions on the licensee in relation to inspection of waste and treatment of waste prior to landfill. In order to ensure compliance with these conditions, Clare County Council revised its waste acceptance procedure in May 2010. As part of this revision, a new waste transfer form was created for use by all commercial customers. Letters were issued to commercial customers advising them of the requirement to pretreat the waste. Waste inspections of smaller customers were used to determine whether the customers were complying with this pre-treatment requirement. In addition, CWMF staff participated in offsite workshops for waste collectors during July 2010. These workshops were arranged by the regional waste management office to inform the waste collectors on their pre-treatment requirements and to advise as to how these requirements could be complied with. The CWMF offered (with the EPA's agreement) to facilitate the use of its civic amenity site to ensure that recyclable materials are removed by the waste collector prior to landfill. To date, this has proven to be very successful for the small number of waste collectors who are availing of this option. The commercial waste collectors separate the smaller recycling streams within the CA site. At the working face, the waste is inspected by the banksman and larger unsuitable items are removed and transferred to the appropriate receptacle in the CA site. Periodic waste inspections are carried out on the waste received to ensure that pre-treatment requirements are complied with.

In relation to waste received from the public at the civic amenity site, this area is staffed by a minimum of two operators, with four operators present during busy periods. The facility operators instruct and advise the public on appropriate disposal. A leaflet has been printed showing the various streams which can be recycled at the facility. This

leaflet is handed out at the weighbridge by site staff. A copy of this leaflet is attached in appendix 8.6.

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

The Regional Waste Management Plan was last updated in 2005. The relevant sections of the plan and a statement in relation to compliance with this plan are outlined below:

- **15.5.1 Biological Treatment**

Policy: " To reduce the quantity of biodegradable waste landfilled in accordance with the EU landfill Directive"

Objective: "To achieve the targets of National Strategy of Biodegradable Waste through a combination of source separated collection and appropriate treatment".

- **15.8 Landfill Disposal**

Policy: Landfills will have a decreasing role in waste management in the Limerick/Clare/Kerry Region in the future as recycling increases and biological/thermal treatment are introduced.

Objective: "Landfills are developed and operated to the highest international standard and in accordance with EPA Waste Licence and to ensure adequate capacity in the Region".

- **Statements re compliance:**

The Central Waste Management Facility is compliant with the Regional Waste Management Plan. All waste collectors operating in Clare have had their waste collection permits reviewed to ensure compliance with landfill diversion targets. The facility is a modern engineered landfill that is operated to the highest standards in compliance with W0109-02. The quantity of municipal waste landfilled has reduced over the last two years helping to reduce the overall reliance on landfill in the region and to reach the target as set out in the plan.

8. APPENDICES

8.1 Licensed Activities at CWMF

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

Class 4.	<i>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.</i>
Class 5.	<i>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.</i>
Class 6.	<i>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.</i>
Class 7.	<i>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.</i>
Class 11.	<i>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.</i>
Class 12.	<i>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.</i>
Class 13.	<i>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.</i>

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

Class 2.	<i>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.</i>
Class 3.	<i>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.</i>
Class 4.	<i>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.</i>
Class 9.	<i>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.</i>
Class 10.	<i>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.</i>
Class 11.	<i>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.</i>
Class 13.	<i>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.</i>

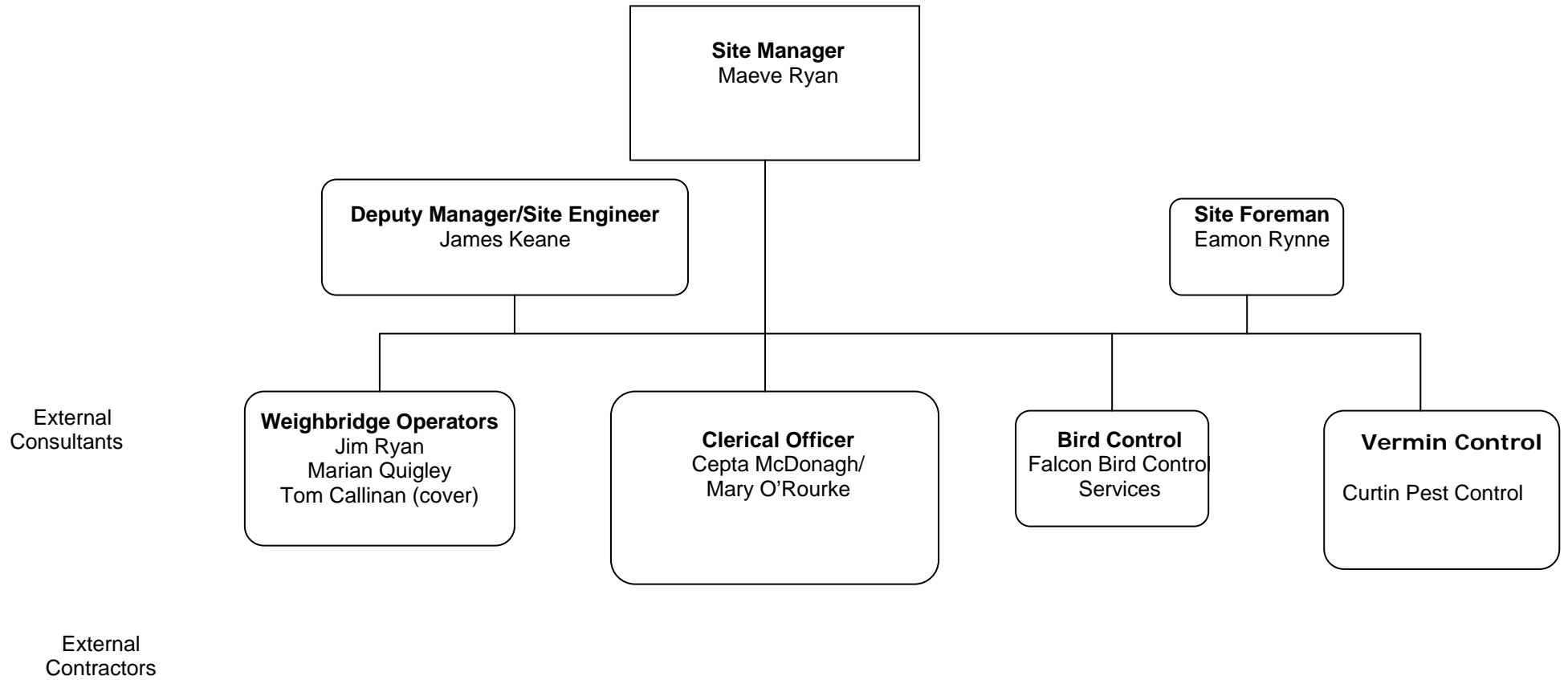
8.2 Water Balance Calculation

Month	Monthly Rainfall Figures (mm) (Shannon)	Landfill Operations			Area (m ²)				Infiltration (m ³)				Estimated Total Leachate (m ³)	
		Active Cell	Temp Cap	Full Cap	Active Area*	Temp Cap	Full Cap*	Concrete	Active Area @ 100% estimated infiltration	Temp Cap 20% est. to leachate directly via cell 12 and 80% est. to leachate via runoff into cell 13	Full Cap @ 10% estimated infiltration	Concrete @ 100% infiltration	Monthly	Cumulative
January	30.8	12	-	Cells 1 - 11	8,000	0	52,500	2,500	246	0	162	77	485	454
February	35.1	12	-	Cells 1 - 11	8,000	0	52,500	2,500	281	0	184	88	553	1,007
March	80.4	12	-	Cells 1 - 11	8,000	0	52,500	2,500	643	0	422	201	1,266	2,273
April	71.4	12	-	Cells 1 - 11	8,000	0	52,500	2,500	571	0	375	179	1,125	3,398
May	56.8	12	-	Cells 1 - 11	8,000	0	52,500	2,500	454	0	298	142	895	4,292
June	33.4	12	-	Cells 1 - 11	8,000	0	52,500	2,500	267	0	175	84	526	4,818
July	123.1	12	-	Cells 1 - 11	8,000	0	52,500	2,500	985	0	646	308	1,939	6,757
August	39.1	12	-	Cells 1 - 11	6,000	0	54,500	2,500	235	0	213	98	545	7,303
September	138.9	12	-	Cells 1 - 11	6,000	0	54,500	2,500	833	0	757	347	1,938	9,240
October	76.8	12	-	Cells 1 - 11	6,000	0	54,500	2,500	461	0	419	192	1,071	10,312
November	133.3	12	-	Cells 1 - 11	6,000	0	54,500	2,500	800	0	726	333	1,860	12,171
December	26.0	13	12	Cells 1 - 11	11,000	8,500	54,500	2,500	286	221	142	65	714	12,885
Total:														12,916

Note *: Active area for January to July 2010 includes some runoff from side slope of capped cell 7. Runoff from side slope of cell 10 diverted to stormwater via rainflap. The active area for July to November 2010 is 2010. Active area for December 2010 includes runoff from side slopes of cell 11 and 12, prior to installation of rainflap after capping (additional 4,000m²).

8.3 Management Structure

Appendix 8.3: Site Management Structure, Central Waste Management Facility



8.4 Summary of Incident Reports

Appendix 8.4: Incident Report Summary 2010 (i)

Date	Incident Number	Incident Type	Description
09/01/2010	CWMF 2010/01(i)	Gas	Perimeter Wells; CH4 level exceeded LG1 LG5 LG7 LG7b LG8 LG11 LG12 LG13 LG19 LG20 LG21; CO2 level exceeded LG1 LG5 LG7 LG7b LG8 LG11 LG12 LG13 LG20 LG21
18/01/2010	CWMF 2010/02	Equipment	TOC meter shutdown
03/02/2010	CWMF 2010/03	Odour	Waste odour at SW3
03/02/2010	CWMF 2010/04(i)	Gas	Perimeter Wells; CH4 level exceeded LG1 LG7 LG7b LG8 LG11 LG12 LG13 LG19 LG20 LG21; CO2 level exceeded LG1 LG7 LG7b LG12 LG13 LG19 LG20 LG21
13/02/2010	CWMF 2010/05	Odour	Gas odour at Boolavan / Maghera Road
18/02/2010	CWMF 2010/06	Odour	Waste odour at Boolavan / Maghera Road
03/03/2010	CWMF 2010/07	Liner	Damage to new SW pond liner during cleaning
09/03/2010	CWMF 2010/08	Suspended Solids	S/S SW pond New & Outlet Jan
09/03/2010	CWMF 2010/09	Suspended Solids	S/S SW pond New Feb
09/03/2010	CWMF 2010/10(i)	Gas	Perimeter Wells; CH4 level exceeded LG7 LG7b LG8 LG13 LG19 LG20 LG21; CO2 level exceeded LG7 LG7b LG8 LG13 LG19 LG20 LG21
13/03/2010	CWMF 2010/11	Flare	Flare; thermo-coupler
20/03/2010	CWMF 2010/10(ii)	Gas	Perimeter Wells; CO2 level exceeded LG18
26/03/2010	CWMF 2010/10(iii)	Gas	Perimeter Wells; CO2 level exceeded LG12
06/04/2010	CWMF 2010/12(i)	Gas	Perimeter Wells; CH4 level exceeded LG7 LG7b LG8 LG13 LG20 LG21; CO2 level exceeded LG7 LG7b LG12 LG19 LG20 LG21
09/04/2010	CWMF 2010/12(ii)	Gas	Perimeter Wells; CH4 level exceeded LG11 LG12; CO2 level exceeded LG8 LG12
20/04/2010	CWMF 2010/12(iii)	Gas	Perimeter Wells; CH4 level exceeded LG19; CO2 level exceeded LG13
07/05/2010	CWMF 2010/13	Suspended Solids	S/S SW pond New April 09
15/05/2010	CWMF 2010/14(i)	Gas	perimeter wells: CH4 trigger level exceeded at LG7, LG 7b, LG8, LG13, LG20, LG21. CO2 trigger level exceeded at LG7, LG7b, LG8, LG12, LG13, LG19, LG20 and LG21
19/05/2010	CWMF 2010/15	PH probe	PH probe inlet new SW pond malfunction
20/05/2010	CWMF 2010/14(ii)	Gas	perimeter wells: CH4 trigger level exceeded at LG7, LG19. CO2 trigger level exceeded at LG11, LG16
20/05/2010	CWMF 2010/14(iii)	Gas	perimeter wells: CH4 trigger level exceeded at LG7a,
09/06/2010	CWMF 2010/16(i)	Gas	perimeter wells: CH4 trigger level exceeded at LG7a,

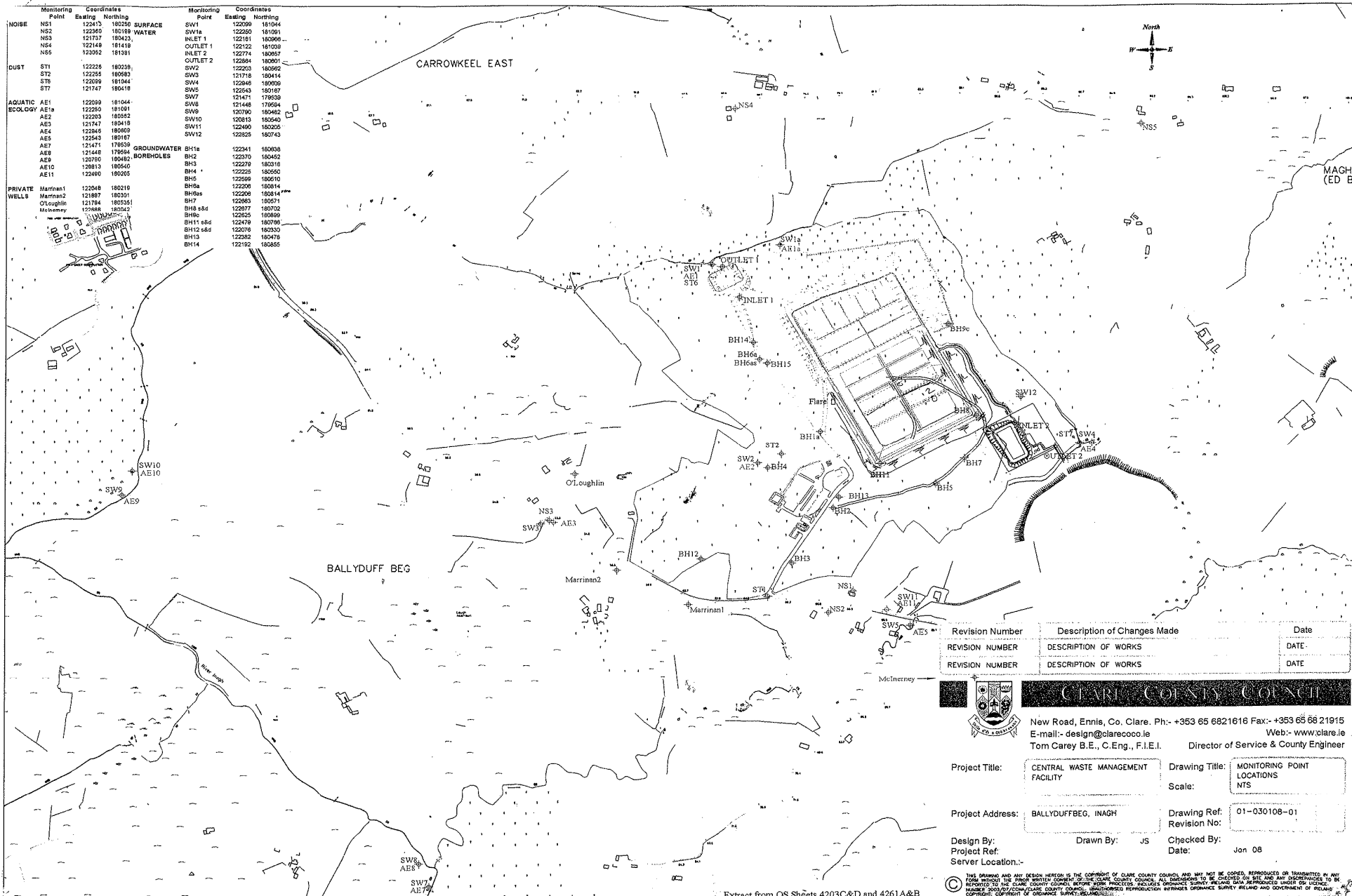
Appendix 8.4 (cont'd): Incident Report Summary 2010 (ii)

Date	Incident Number	Incident Type	Description
28/06/2010	CWMF 2010/16(ii)	Gas	perimeter wells: CO2 trigger level exceeded at LG8
06/07/2010	CWMF 2010/17	Flare	Thermocoupler malfunction
09/07/2010	CWMF 2010/18(i)	Gas	perimeter wells
21/07/2010	CWMF 2010/18(ii)	Gas	perimeter well
13/07/2010	CWMF 2010/19	Ground water	Ground water BR2 ammonia
22/07/2010	CWMF 2010/18(iii)	Gas	Perimeter wells
31/07/2010	CWMF 2010/20	odour	Waste odour at Boolavan / Maghera Road
07/08/2010	CWMF 2010/21(I)	Gas	Perimeter wells
07/08/2010	CWMF 2010/22	Gas	Perimeter well not reported in 18(I-iii)
12/08/2010	CWMF 2010/23	odour	Waste odour at B. Fitzgerald's residence
13/08/2010	CWMF 2010/21(ii)	Gas	Perimeter well
24/08/2010	CWMF 2008 24	SCADA	SCADA not logging
24/08/2010	CWMF 2010/25	SCADA	TOC reading incorrectly
31/08/2010	CWMF 2010/21(iii)	Gas	Perimeter wells
01/09/2010	CWMF 2010/26	Odour	Waste odour at B. Fitzgerald's residence
04/09/2010	CWMF 2010/27	Gas	Perimeter gas wells
10/09/2010	CWMF 2010/28	odour	Fresh waste odour at SW3
05/10/2010	CWMF 2010/29	Gas	Perimeter gas wells
23/10/2010	CWMF 2010/29(ii)	Gas	Perimeter gas wells
07/10/2010	CWMF 2010/30	Flare	Flare shutdown for 11 hrs. No text received.
07/10/2010	CWMF 2010/31	Odour	Waste odour at Boolavaun/Maghera Rd
12/10/2010	CWMF 2010/32	Odour	Waste odour at Boolavaun/Maghera Rd
23/10/2010	CWMF 2010/33	Odour	Waste odour at Carrowkeel/Maghera Rd
23/10/2010	CWMF 2010/34	SW	Suspended solids levels in storm2 outlet exceeded limits

Appendix 8.4(cont'd) Incident Report Summary 2009 (iii)

Date	Incident Number	Incident Type	Description
10/11/2009	CWMF 2009/35	Gas	Perimeter gas wells
17/11/2009	CWMF 2009/35(ii)	Gas	Perimeter gas wells
10/11/2009	CWMF 2009/36	Odour	Waste odour in vicinity of Long residence
16/11/2009	CWMF 2009/37	Odour	Waste odour at B. Fitzgerald's residence
25/11/2009	CWMF 2009/38	Cell leachate levels	Leachate level in cell 12 rose above limit level
25/11/2009	CWMF 2009/39	ll leachate level transdu	Cell 8 transducer reading incorrectly.
25/11/2009	CWMF 2009/40	Leachate Levels	Leachate levels in old lagoon rose to within 0.75m of freeboard
27/11/2009	CWMF 2009/41	Odour	Waste odour at Maghera Rd
07/12/2009	CWMF 2009/42	Gas	Perimeter well gas wells
16/12/2009	CWMF 2009/43	SW	Outlet suspended solids levels above limits
21/12/2009	CWMF 2009/44	Odour	Waste odour at Maghera Rd
22/12/2009	CWMF 2009/45	Odour	Odour in vicinity of site entrance
31/12/2009	CWMF 2009/46	Monitoring	Sample lines frozen at Storm 1 outlet

8.5 Monitoring Point Location Map



Monitoring Point	Coordinates Easting	Coordinates Northing	Monitoring Point	Coordinates Easting	Coordinates Northing
NOISE NS1	122413	182250	SURFACE SW1	122009	181044
NS2	122360	180189	WATER SW1a	122250	181091
NS3	121737	180423	INLET 1	122181	182069
NS4	122148	181418	INLET 2	122774	182057
NS5	123052	181381	CUTLET 1	122584	182001
DUST ST1	122228	180238	SW2	122203	180562
ST2	122255	180983	SW3	121718	180414
ST6	122009	181941	SW4	122846	180939
ST7	121747	180418	SW5	122543	180167
AQUATIC ECOLOGY AE1	122009	181044	SW7	121471	179538
AE1a	122250	181091	SW8	121448	179594
AE2	122203	180952	SW9	120780	180482
AE3	121747	180418	SW10	120818	180540
AE4	122846	180939	SW11	122460	182025
AE5	122543	180167	SW12	122825	180743
AE7	121471	179538	GROUNDWATER BOREHOLES BH1a	122341	182038
AE8	121448	179594	BH2	122370	180452
AE9	120780	180482	BH3	122278	182018
AE10	120818	180540	BH4	122225	180560
AE11	122460	182025	BH4c	122588	180610
PRIVATE WELLS Marrinan1	122048	180219	BH6a	122200	180814
Marrinan2	121887	180301	BH6as	122206	180814
O'Loughlin	121734	180335	BH7	122083	180571
McKenny	121988	180342	BH8 s&d	122077	180702
			BH8	122025	180889
			BH11 s&d	122478	180795
			BH12 s&d	122078	180330
			BH13	122382	180478
			BH14	122192	180855

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

CLARE COUNTY COUNCIL

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 E-mail:- design@clarecoco.ie Web:- www.clare.ie
 Tom Carey B.E., C.Eng., F.I.E.I. Director of Service & County Engineer

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

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

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8.6 Public Information Leaflet

Landfill Waste Received from Members of the Public at the Central Waste Management Facility

Condition 1.13 of our waste licence states that:
'Only waste that has been subject to treatment shall be accepted for disposal at the landfill facility'

TO assist us in complying with this condition, please ensure that all recyclable items in your household waste are segregated in to the receptacles provided.

UNSEGREGATED HOUSEHOLD WASTE SHOULD NOT BE DISPOSED OF TO LANDFILL

Receptacles are available for the following items:-



Cardboard



Newspapers & Magazines



Food Cans



Drinks Cans



Plastic Bottle Waste



Glass Bottles & Jars



Tetra-paks



Textiles



Clare County Council
for more information contact the facility at
065 6836960



8.7 List of Site Standard Operating Procedures prepared/revised during 2010.

CWMF Site Procedures 2010

SOP	Description	Last Revision Date	Reason for revision
1	Procedure to be followed in the event of malfunction/non-operation of TOC analyser	26/01/2010	Change in instrumentation
2	Procedure to be followed in the event of activation of the pH alarm	29/12/2009	Change in instrumentation.
3	Procedure to be followed in the event of activation of the conductivity alarm	29/12/2009	Change in instrumentation.
4	Landfill gas monitoring/training procedure	25/01/2010	Revised to include reference to training
5	Exceedence of Trigger Levels for Key Parameters in Groundwater Samples	25/01/2010	New SOP format
6	Communications Programme	19/01/2010	New SOP format
7	Documentation Procedure	15/01/2010	New SOP format
8	Procedure to be followed in the event of landfill gas flare malfunction.	23/12/2009	Changed to reflect out-of-hours support
9	Awareness and Training Procedure	25/01/2010	New SOP format
10	Emergency Response Procedure	20/01/2010	Updated
11	Corrective Action Procedure	26/01/2010	Updated to reflect change in reoprting of incidents
12	Complaints Procedure	08/06/2010	Updated to reflect new waste licence number
13	Waste Acceptance Procedure	04/05/2010	Modified. New documentation system for waste removed from landfill face. New waste acceptance form. Changes in waste licence
14	Procedure for handling hazardous domestic waste	23/12/2009	New SOP format
15	Handling Procedure for Difficult Wastes and Non-Hazardous Industrial Solid Wastes	27/01/2010	Changed to reflect approved waste streams
16	Odour Patrol Procedure	05/11/2010	Revised to reflect EPA recommended procedure
17	Surface Water Visual Inspection Procedure.	27/01/2010	New SOP format
18	Administrative Procedure	11/10/2010	New in 2010. Deals with administrative side of site operation
19	Procure for Handling, storage and deposition of wood ash	11/05/2010	New in 2010. Prepared in response to W0109-02.
20	Procedure for Leachate Handling	08/09/2010	New in 2010. Prepared in response to W0109-02.
21	Procedure for Removal of Recyclable Waste from the Civic Amenity Site	16/06/2010	New in 2010. Site staff identified requirement for this procedure.
22	Procedure for Application of Landfill Cover	18/01/2011	New in 2010. Prepared in response to W0109-02.

8.8 Landfill Gas Survey Returns for 2010

A survey of landfill sites to determine the quantity of methane flared and or recovered in utilisation plants for 2010

Please choose from the drop down menu the license number for your site	W0109
Please choose from the drop down menu the name of the landfill site	Ballyduff Beg
Please enter the number of flares operational at your site in 2010	2
Please enter the number of engines operational at your site in 2010	Select
Total methane flared	1,379,541 kg/year
Total methane utilised in engines	0 kg/year

Please note that the closing date for receipt of completed surveys is 31/03/2011

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

If an operator wishes to enter more precise information than the data options in the drop down menus, please contact LFGProject@epa.ie for a version of the survey that will allow you to do so

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_2010) to:

LFGProject@epa.ie

to be filled in by licensee | calculated by spreadsheet

Flare No. 1

Flare type ? If "other" enter flare description here

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

Month /year commissioned ?

Month decommissioned if decommissioned in 2010 ?

What is the function of the flare ? If "other" enter flare function here

Monthly	Method M/C/E	Runtime days/month	Runtime hrs/day	Downtime hrs	Total runtime hrs/month	Average Inlet Pressure (mbg)	Average Flow Rate (m ³ /hr)	Average CH ₄ %v/v	Average CO ₂ %v/v	Average O ₂ %v/v	Combustion efficiency (%)	Total CH ₄ m ³	Total CH ₄ kgs
January	M	31	24.0		744	-10	620	39.50	20.00	4.20	98.0	178,561	122,071
February	M	28	24.0	3.0	669	-12	635	40.00	21.00	3.50	98.0	166,527	113,617
March	M	31	24.0		744	-15	620	36.20	19.00	4.20	98.0	163,644	111,315
April	M	30	24.0		720	-15	620	35.90	19.80	4.20	98.0	157,052	106,831
May	M	31	24.0	3.0	741	-15	650	34.90	20.40	3.00	98.0	164,734	112,057
June	M	30	24.0		720	-15	605	37.30	22.30	2.70	98.0	159,229	108,312
July	M	31	24.0		744	-15	605	36.90	22.10	2.70	98.0	162,772	110,722
August	M	31	24.0		744	-15	635	38.50	22.90	2.50	98.0	178,252	121,252
September	M	30	24.0	3.0	717	-15	650	35.20	16.20	2.70	98.0	160,769	109,359
October	M	31	24.0		744	-16	595	34.80	22.00	3.20	98.0	150,972	102,592
November	M	30	24.0		720	-20	620	36.00	23.00	3.00	98.0	157,490	106,592
December	M	31	24.0	3.0	741	-30	620	35.00	21.10	3.00	98.0	157,581	105,580
Total					8,748							1,957,583	1,330,302

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

Yearly	Method M/C/E	Runtime days/year	Runtime hrs/day	Downtime hrs	Total runtime hrs/year	Average Inlet Pressure (mbg)	Average Flow Rate m ³ /hr	Average CH ₄ %v/v	Average CO ₂ %v/v	Average O ₂ %v/v	Combustion efficiency (%)	Total CH ₄ m ³	Total CH ₄ kgs
2010					0						98.0	0	0

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

Flare No. 2

Flare type ?	Fans and Blower ▼	If "other" enter flare description here	
Is the flare an open or enclosed flare ?	Open ▼	Rated flare capacity ?	500 ▼ m3/hr
Month /year commissioned ?	September ▼	2010 ▼	
Month decommissioned if decommissioned in 2010 ?	Select ▼		
What is the function of the flare ?	Odour control ▼	If "other" enter flare function here	

Monthly	Method M/C/E	Runtime days/month	Runtime hrs/day	Downtime hrs	Total runtime hrs/month	Average Inlet Pressure (mbg)	Average Flow Rate (m ³ /hr)	Average CH ₄ %/v	Average CO ₂ %/v	Average O ₂ %/v	Combustion efficiency (%)	Total CH ₄ m ³
January	c				0						50.0	0
February	c				0						50.0	0
March	c				0						50.0	0
April	c				0						50.0	0
May	c				0						50.0	0
June	c				0						50.0	0
July	c				0						50.0	0
August	c				0						50.0	0
September	c	15	24.0	9.0	351		210	31.00	25.00	5.00	50.0	11,425
October	c	31	24.0	14.0	730		190	31.00	24.00	7.00	50.0	21,499
November	c	30	24.0	4.0	716		180	31.00	23.00	7.00	50.0	19,976
December	c	31	24.0	0.0	744		165	30.00	24.00	6.00	50.0	18,414
Total					2,541							71,314

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

Yearly	Method M/C/E	Runtime days/year	Runtime hrs/day	Downtime hrs	Total runtime hrs/year	Average Inlet Pressure (mbg)	Average Flow Rate m ³ /hr	Average CH ₄ %/v	Average CO ₂ %/v	Average O ₂ %/v	Combustion efficiency (%)	Total CH ₄ m ³
2010					0						50.0	0

8.9 PRTR Returns for 2010



AER Returns Workbook

REFERENCE YEAR	2010
-----------------------	------

1. FACILITY IDENTIFICATION

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

Waste or IPPC Classes of Activity

No.	class_name
3.5	Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.
3.11	Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule.
3.12	Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule.
3.13	Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.
3.2	Land treatment, including biodegradation of liquid or sludge discards in soils.
3.4	Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons.
3.6	Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10. of this Schedule.
3.7	#####
4.10	The treatment of any waste on land with a consequential benefit for an agricultural activity or ecological system.
4.11	Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule.
4.13	Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.
4.2	Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).
4.3	Recycling or reclamation of metals and metal compounds.
4.4	Recycling or reclamation of other inorganic materials.
4.9	Use of any waste principally as a fuel or other means to generate energy.

Address 1	Ballyduff Beg
Address 2	Inagh
Address 3	Co. Clare
Address 4	
Country	Ireland
Coordinates of Location	-9.15295 52.8715
River Basin District	IEGBNISH
NACE Code	3821
Main Economic Activity	Treatment and disposal of non-hazardous waste
AER Returns Contact Name	Maeve Ryan
AER Returns Contact Email Address	mryan@clarecoco.ie
AER Returns Contact Position	Landfill Manager
AER Returns Contact Telephone Number	065 6836960
AER Returns Contact Mobile Phone Number	087 2899248
AER Returns Contact Fax Number	065 6836959
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	0
User Feedback/Comments	
Web Address	

2. PRTR CLASS ACTIVITIES

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

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

Is it applicable?	
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?	

4.1 RELEASES TO AIR

[Link to previous years emissions data](#)

| PRTR# : W 0109 | Facility Name : Central Waste Management Facility | File# :

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR				
POLLUTANT		METHOD		
No. Annex II	Name	M/C/E	Method Used	
			Method Code	Designation or Description
01	Methane (CH4)	M	PER	
03	Carbon dioxide (CO2)	M	PER	
02	Carbon monoxide (CO)	M	PER	
08	Nitrogen oxides (NOx/NO2)	M	PER	
11	Sulphur oxides (SOx/SO2)	M	PER	

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

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO AIR				
POLLUTANT		METHOD		
No. Annex II	Name	M/C/E	Method Used	
			Method Code	Designation or Description
35	Dichloromethane (DCM)	M	PER	Result reported as "less than"
52	Tetrachloroethylene (PER)	M	PER	Result reported as "less than"
60	Vinyl chloride	M	PER	Result reported as "less than"

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

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

RELEASES TO AIR				
POLLUTANT		METHOD		
Pollutant No.	Name	M/C/E	Method Used	
			Method Code	Designation or Description
319	Inorganic acids	M	PER	SUM of HCl and HF results. HF result reported as "less than"
230	TA Luft organic substances class 1	M	PER	Result reported as "less than"
231	TA Luft organic substances class 2	M	PER	Result reported as "less than"
232	TA Luft organic substances class 3	M	PER	Result reported as "less than"

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

Additional Data Requested from Landfill operators

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

Landfill:

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

Central Waste Management Facility

	T (Total) kg/Year	M/C/E	Method Used	
			Method Code	Designation or Description
Total estimated methane generation (as per site model)	1458225.0	E	OTH	gassim model
Methane flared	1379541.0	M	PER	Measured using online instru
Methane utilised in engine/s	0.0			
Net methane emission (as reported in Section A above)	78684.0	C	Calculated	Difference between amount

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

| PRTR# : W0109 | Facility Name : Central Waste Management Facility | Filename : W0109_2010(1).xls | Return Year : 2010 |

Please enter all quantities on this sheet in Tonnes

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment
						M/C/E	Method Used	
Within the Country	20 03 01	No	14976.5	mixed municipal waste	D5	M	Weighed	Onsite in Ireland
Within the Country	20 03 03	No	840.64	street-cleaning residues	D5	M	Weighed	Onsite in Ireland
Within the Country	20 03 07	No	394.14	bulky waste.	D5	M	Weighed	Onsite in Ireland
Within the Country	20 01 08	No	395.22	biodegradable kitchen and canteen waste (i.e. international canteen waste only) other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12	D5	M	Weighed	Onsite in Ireland
Within the Country	19 12 12	No	4185.0	11	D5	M	Weighed	Onsite in Ireland
Within the Country	19 09 02	No	896.1	sludges from water clarification, water clarification cake	D5	M	Weighed	Onsite in Ireland
Within the Country	10 01 01	No	4522.74	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04). Wood ash	R5	M	Weighed	Onsite in Ireland
Within the Country	19 12 07	No	448.0	wood other than that mentioned in 19 12 06. Recycled wood chip	R5	M	Weighed	Onsite in Ireland
Within the Country	17 01 07	No	1716.08	mixture of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06, received from waste facilities and used as landfill cover	R5	M	Weighed	Onsite in Ireland
Within the Country	20 01 38	No	311.28	wood other than that mentioned in 20 01 37	R5	M	Weighed	Offsite in Ireland
Within the Country	20 02 01	No	404.64	biodegradable waste	R3	M	Weighed	Onsite in Ireland
Within the Country	20 01 01	No	112.92	paper and cardboard	R3	M	Weighed	Offsite in Ireland

W ithin the Country	20 01 02	No	53.8 glass	R5	M	Weighed	Offsite in Ireland
W ithin the Country	20 01 40	No	341.78 metals	R4	M	Weighed	Offsite in Ireland
W ithin the Country	20 01 39	No	45.84 plastics	R3	M	Weighed	Offsite in Ireland
W ithin the Country	20 01 11	No	16.24 textiles	R3	M	Weighed	Offsite in Ireland
W ithin the Country	20 01 25	No	0.56 edible oil and fat	R3	M	Weighed	Offsite in Ireland
W ithin the Country	20 01 35	Yes	41.813 CRT and IT	R4	M	Weighed	Offsite in Ireland
W ithin the Country	20 01 36	No	32.274 SDA's	R4	M	Weighed	Offsite in Ireland
W ithin the Country	20 01 27	Yes	6.3 paint, inks, adhesives and resins containing dangerous substances	R1	M	Weighed	Offsite in Ireland
W ithin the Country	16 06 01	Yes	1.428 lead batteries	R4	M	Weighed	Offsite in Ireland
W ithin the Country	16 06 02	Yes	2.74 Ni-Cd batteries	R4	M	Weighed	Onsite in Ireland
W ithin the Country	15 01 04	No	1.0 metallic packaging, aluminium cans	R4	M	Weighed	Offsite in Ireland
W ithin the Country	15 01 07	No	14.16 glass packaging	R5	M	Weighed	Offsite in Ireland
W ithin the Country	15 01 05	No	1.7 composite packaging, tetrapaks	R3	M	Weighed	Offsite in Ireland
W ithin the Country	15 01 02	No	30.45 plastic packaging	R3	M	Weighed	Offsite in Ireland
W ithin the Country	15 01 04	No	38.0 metallic packaging, metal cans	R4	M	Weighed	Offsite in Ireland
W ithin the Country	19 07 03	No	7482.24 landfill leachate other than those mentioned in 19 07 02	D8	M	Weighed	Offsite in Ireland

Within the Country	19 07 03	No	landfill leachate other than those mentioned 4633.109 in 19 07 02	D8	M	Weighed	Offsite in Ireland
Within the Country	19 07 03	No	landfill leachate other than those mentioned 2818.0 in 19 07 02	D8	M	Weighed	Offsite in Ireland
Within the Country	16 01 07	Yes	0.82 oil filters	R9	M	Weighed	Offsite in Ireland
Within the Country	13 02 05	Yes	mineral-based non-chlorinated engine, gear 5.2 and lubricating oils	R9	M	Weighed	Offsite in Ireland
Within the Country	15 01 01	No	52.12 paper and cardboard packaging	R3	M	Weighed	Offsite in Ireland
Within the Country	17 08 02	No	gypsum-based construction materials other 1.76 than those mentioned in 17 08 01	R5	M	Weighed	Offsite in Ireland
Within the Country	17 01 07	No	mixture of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06, received from householders and used 47.7 for haul road construction	R5	M	Weighed	Onsite in Ireland
Within the Country	16 06 01	Yes	0.72 lead batteries	R4	M	Weighed	Offsite in Ireland
Within the Country	20 01 35	Yes	20.442 Fridges	R4	M	Weighed	Offsite in Ireland
Within the Country	20 01 36	No	51.207 LDAs	R4	M	Weighed	Offsite in Ireland
Within the Country	20 01 21	Yes	fluorescent tubes and other mercury- 0.899 containing waste	R4	M	Weighed	Offsite in Ireland