Annual Environmental Report

FOR

DUBLIN WASTE TO ENERGY LTD.

EPA Ref. Nº:	W0232-01

Revision 2.0

Prepared by:-

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28th March 2018

Annual Environmental Report

FOR

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User is Responsible for Checking the Revision Status of This Document

Rev. No.	**Description of Changes:**	**Prepared by:**	**Date:**
1.0	AER for 2017	M. Heffernan	28th March 2018
2.0	Corrected Tonnage Table	M.Heffernan	19th April 2018

Keywords: EMS, EMP, ERP, site operations, infrastructure, nuisance, waste handling, environmental monitoring

Table of Contents

Introduction

The Environmental Protection Agency (EPA) issued Dublin City Council with waste license W0232-01 on the 1st December 2008. Under section S76A (11) of the Waste Management Act 1996 the license was amended to an Industrial Emissions License on the 7th January 2014.

The license was transferred to Dublin Waste to Energy (DWTE) on the 31st October 2014.

The industrial emissions license (W0232-01) conditions 11.6 and 11.7 state the following:

11.6- Pollutant Release and Transfer Register (PRTR)

"The licensee shall prepare and report a PRTR for the site. The substances and/or waste to be included in the PRTR shall be agreed by the Agency each year by reference to EC Regulation NO.166/2006 concerning the establishment of the European Pollutant Release and transfer Register and amending Council Directives 91/689/EEC and 96/61/EC. The PRTR shall be prepared in accordance with any relevant guidelines issued by the Agency and shall be submitted electronically in specified format and as part of the AER."

11.7 Annual Environmental Report

11.7.1 – The licensee shall submit to the Agency, by the 31st of March each year, an annual Environmental Report (AER) covering the previous calendar year.

11.7.2 – The AER shall include as a minimum:

a) *The information specified in Schedule D: Annual Environmental Report, of this license and shall be prepared in accordance with any relevant written guidance issued by the Agency.*

b) *A report of annual audits undertaken by the licensee of the waste disposal, treatment recovery sites for the residues and other wastes dispatched from the facility.*

c) *Pollutant Release and Transfer Register (PRTR)*

Annual Environmental Report

The Annual Environmental Report (AER) shall contain as a minimum the contents outlined in schedule D of W0232-01. The following report outlines the schedule D requirements as per the headings listed in Schedule D- Annual Environmental Report Content. As this AER is the first for DWTE and is only compiled using 6 months of data from July 2017 to 31 December 2017, there will be some elements which may not be complete until the following year 2018.

1.0 Reporting Period

This is the first AER for the Dublin Waste to Energy facility. It covers the period for 1st January 2017 to the 31st December 2017.

Operations only commenced in June 2017 and after a short pause due to testing and commissioning issues re-commenced in July 2017. This AER will address where possible the content required for an AER due to the availability of only 6 months data during start-up of the facility.

2.0 Details of Waste Activities for 2017

The waste activities carried out at the Dublin Waste to Energy facility are licensed as follows under Section 76A(11) Amendment to Industrial Emissions License W0232-01.

11.3 (a) Disposal or Recovery of waste in waste incineration plants or in waste co-incineration plants for non-hazardous waste with a capacity exceeding 3 tonnes per hour

11.1 The recovery or disposal of waste in a facility, within the meaning of the Act of 1996, which facility is connected or associated with another activity specified in this Schedule in respect of which a license or revised license under Part IV is in force or in respect of which a license under the said Part is or will be required.

3.0 Quantity and Composition of Waste Received, Recovered and Disposed for 2017

The figures for waste received and consumables delivered for 2017 are outlined in the tables below.

Waste Delivered to DWTE for 2017 by EWC Codes	Tonnes
200301	238,614.48
191212	33,785.26
200307	6,257.36
020203	7.72
020103	30.06
160304	6.12
020601	1.28
Total Waste Accepted for 2017	**278,702.28**

Consumables Delivered for 2017	Tonnes
Activated Carbon	138.42
Ammonia	129.68
Sodium Hydroxide (Caustic)	81.00
Diesel Fuel	1,497.58
Hydrated Lime	1,932.10
Hypochlorite	332.96
Milled Lime	941.70

Waste Processed for 2017

The tonnage of waste processed for 2017 at the Dublin Waste to Energy facility is outlined in table below:

Waste Processed 2017	Line 1 (tonnes)	Line 2 (tonnes)	Total Processed	Total Processed (Adjusted for Evap. Rate)
Total for 2017	**120,671**	**130,159**	**250,830**	**272,483**

The summary below outlines the waste sent off site for disposal for 2017. The tonnage is broken down by EWC code. The total tonnage that left site for 2017 is 47,923.80 tonnes.

EWC Code	Tonnage
17 02 01	37.18
17 04 07	14.14
17 09 04	121.44
19 01 07*	9,526.54
19 01 11*	38,159.16
19 08 05	61.80
20 03 01	3.54
Total Tonnes off site for 2017	**47,923.80**

4.0 Summary Report on Emissions

A summary of Emissions for 2017 is outlined in the E-PRTR attached in appendix 1.

A summary of all Stack testing for 2017 is outlined in table below:

All stack testing emissions to air results were below licensed limits during 2017.

Parameter	Units	EPA License Limit	Result Line 1 Q3 2017	Result Line 2 Q3 2017	Result Line 1 Q4 2017	Result Line 2 Q4 2017	EPA License Limit
Dates			**20-21 Sept 17**	**20-21 Sept 17**	**4-8 Dec 17**	**4-8 Dec 17**	
PM_{10}	**mg/m^3**	-	0.18	0.2	0.188	0.201	-
$PM_{2.5}$	**mg/m^3**	-	0.14	0.15	0.142	0.132	-
Cadmium & Thallium	**mg/m^3**	**0.05**	<0.00071	<0.00056	0.00067	0.00068	**0.05**
Heavy Metals	**mg/m^3**	**0.5**	0.159	0.13	0.052	0.04	**0.5**
Mercury	**mg/m^3**	**0.05**	<0.0003	0.00091	0.00292	0.00124	**0.05**
Arsenic	**mg/m^3**	**0.2**	<0.00065	0.0006	0.00039	0.002	**0.2**
Dioxins & Furans (I-TEQ)	**ng/m^3**	**0.1**	0.0035	0.00022	0.00235	0.00016	**0.1**
Hydrogen Fluoride	**mg/m^3**	**4**	<0.036	0.042	0.092	0.051	**4**
Nitrous Oxide	**mg/m^3**		5.7	1.83	1.79	0.037	

5.0 –Summary Report on Noise Survey

Dublin Waste to Energy have carried out two quarterly noise monitoring reports for 2017.

A summary of license compliance noise monitoring for Q3 and Q4 2017 is outlined below.

Location	$L_{AEQ\ 30\ mins}$ (dB)	$L_{A10\ 30\ mins}$ (dB)	$L_{A90\ 30\ mins}$ (dB)
N7 (Daytime)	62	63	53
N7 (Night time)	53	50	48
N8 (Daytime)	62	62	56
N8 (Night time)	55	55	53
N9 (Daytime)	68	68	62
N9 (Night time)	60	61	60
N10 (Daytime)	61	60	51
N10 (Night time)	49	49	46

Summary of Q3 2017 Noise Monitoring

Location	$L_{AEQ\ 30\ mins}$ (dB) Average	$L_{A10\ 30\ mins}$ (dB) Average	$L_{A90\ 30\ mins}$ (dB) Average
N7 (Daytime)	57	58	52
N7 (Night time)	52	53	50
N8 (Daytime)	62	64	56
N8 (Night time)	55	55	52
N9 (Daytime)	62	64	59
N9 (Night time)	59	61	57
N10 (Daytime)	55	56	50
N10 (Night time)	46	47	44

Summary of Q4 2017 Noise Monitoring

The Q3 and Q4 reports for 2017 concluded as follows:

It was noted during the sound measurements that the operation of the Waste to Energy facility was only just audible at all locations within the site boundary. As the nearest residential receptors are located approximately 850m from the site any sound will be significantly attenuated and will comfortably meet the specified limits. Third octave band analysis demonstrated that there were no audible tonal sound sources measured at the Dublin Waste to Energy facility.

6.0 Summary of all Environmental Monitoring

The following is a summary of all Environmental monitoring carried out at the Dublin Waste to Energy Facility during 2017.

- 2 no. Noise monitoring
- 2 no. Emissions to Air Stack Testing by EXOVA
- Continuous Emissions to Air Monitoring by CEMS
- Emergency Diesel Back-Up Generator Emissions testing
- Sampling and Analysis of Flue Gas Treatment Residue (FGTR)
- Sampling and Analysis of Incinerator Bottom Ash (IBA)
- Meteorological Monitoring – on site weather station
- Ambient Groundwater Monitoring Annually –GW1 (Results for Nov 2017 in Appendix 2)

7.0 Marine Biological & Thermal Discharge Survey Report Summary

Biological and Toxicity testing are licensed to be carried out within 12 months of the commencement of operations which was on the waste acceptance date of the 24th April 2017. At the time of writing this report, agreement is being sought from the Agency for the thermal and biological testing. These results will be submitted to the Agency in due course and will feature in the AER for 2018.

8.0 Resource and Energy Consumption Summary

An energy audit has not yet taken place at the facility as operations have only commenced for 6 months of 2017. A full energy audit of the facility will take place during 2018 and will be submitted to the Agency in due course. This will be included in the AER for 2018.

9.0 Waste Recovery Report

Incinerator Bottom Ash (IBA) from the Dublin Waste to Energy facility is exported abroad under TFS notification to Rock Solid in Netherlands for metal recovery and materials recovery.

FGTR from the Dublin Waste to Energy facility is also exported abroad under TFS notification to the K&S facility in Germany.

IBA Recovery at Rock Solid BV, Netherlands

The Rock Solid facility in the Netherlands recovers the metals (ferrous and non-ferrous) from the IBA material. The remaining bottom ash material is used as aggregate in road building or landfill cover material.

FGTR Recovery at K&S, Salt Mine Facility, Germany

The K&S facility is a salt mine in Germany. The mine is situated 800 m below ground. The mine can accept 150,000 tonnes of waste per year. There is a lifespan of 25 to 30 years remaining at this location. The objective of backfilling is to support the pillars in the exhausted mines. The K&S facility can accept both tankers and bags. The material in the bag sets and is moved from a conveyor belt to a holding area for 4 hours. Once the bags are deemed acceptable they are sent down the mine in an elevator 8 bags at a time. The bags are then placed in galleries and sprayed with off-spec salt to fill the spaces between the bags for structural integrity.

Recovery figures for 2017 are as follows:

Material	Tonnage	Recovery Code
Ferrous Metals	2,714	R4
Non Ferrous Metals	1,462	R4
Incinerator Bottom Ash (IBA)	33,983	R12,R4 and R5
Flue Gas Treatment Residue (FGTR)	9,527	R5

10.0 Tank, Drum and Pipeline and Bund Testing and Inspection Report

Bunding report was submitted to EPA on 02 February 2017. All bunds were tested and certified as per condition number 3.12.5 during 2016 for a period of five years. Re-testing of Bunds will take place in 2021.

11.0 Summary of Reported Incidents and Complaints

2017	Complaints	Total Incidents	Temp <850°C	ELV's CW	ELV's Air
Mar-17	3				
Apr-17	1				
May-17	13				
June-17	0	5	4	1	
July-17	13	11	7	1	3
Aug-17	4	12	10	2	
Sept-17	3	3	3		
Oct-17	2	2	1		1
Nov-17	1	5	4		1
Dec-17	3	3	3		
Totals	**43**	**41**	**32**	**4**	**5**

Incidents for 2017 totaled 41 and are summarized as follows: *(Emission Limit Values-ELV's)*

- Furnace Temperature below 850°C = 32
- ELV's to Air = 5
- ELV's at Cooling Water (CW) = 4

Complaints for 2017 totaled 43 and are closed out. The incidents and complaints took place during the testing and commissioning phase of the project.

12.0 Summary of Audits of Waste Disposal, Treatment and Recovery Sites for the Residues from the Facility.

During 2017, Dublin Waste to Energy visited both the K&S facility, Germany and the NOAH AS facility in Norway. Both facilities recover the Flue Gas Treatment Residue (FGTR) produced at the Dublin Waste to Energy facility. These facilities were approved for continued use.

Dublin Waste to Energy also visited the Rock Solid VF facility in the Netherlands during 2017. The Rock Solid facility recovers the Incinerator Bottom Ash (IBA) produced at the Dublin Waste to Energy facility. The metal recovery also takes place at this facility.

13.0 EMP – Report for Previous Year

This is the first EMP for the DWTE facility so there was no report for the previous year.

14.0 EMP- Proposal for Current Year

EMP has received the Agencies agreement and the recommend amendments will be included in the revision in the coming weeks. This revision will include a review of the schedule of objectives and targets as requested by the Agency.

15.0 PRTR for Previous Year

This is the first year of E-PRTR reporting so there is no previous years E-PRTR report.

16.0 PRTR Proposal for current year

Continue with PRTR reporting obligations for AER reporting for 2018 in February 2019.

17.0 Log of Use of Emergency Generator

The standby diesel emergency generator has logged the following run hours for 2017.
Hours Run for 2017 = 54.22 from 146 starts.
The hours run are logged as part of the weekly environmental walk-down.

18.0 Report of Particulates Monitoring

The report on particulates monitoring was carried out as part of the quarterly stack testing for 2017. Q3 and Q4 reports for particulate monitoring can be summarized in table below. Please also refer to Appendix 1 E-PRTR for 2017.

Parameter	Units	Result Line 1 Q3 2017	Result Line 2 Q3 2017	Result Line 1 Q4 2017	Result Line 2 Q4 2017	Average Line 1	Average Line 2
Dates		**20-21 Sept 17**	**20-21 Sept 17**	**4-8 Dec 17**	**4-8 Dec 17**		
PM_{10}	mg/m^3	0.18	0.2	0.188	0.201	0.184	0.2005
$PM_{2.5}$	mg/m^3	0.14	0.15	0.142	0.132	0.141	0.141

19.0 Hypochlorite Dosing Plan Summary Report

Sodium Hypochlorite is used in the cooling water to eliminate marine growth during the transport of cooling water throughout the plant. The cooling water is then returned to the Liffey estuary. Monitoring of the residual chlorine is a license requirement as per schedule C.2.1 and the dosing plan is included in the EMP and will be reviewed annually. The current dosing schedule is operating within license requirements.

20.0 Review of Decommissioning Management Plan

The decommissioning plan or CRAMP was submitted on 29 November 2016 and approved by the Agency on 05 January 2017. The financial provision (FP) mechanism was reviewed and accepted by the Agency on 19 December 2017.

21.0 Statement of Measures in relation to Prevention of Environmental Damage and Remedial Actions (Environmental Liabilities)

The ELRA financial provision mechanism was reviewed in 2017 and approved by the Agency on the 19 December 2017. The Agency reviewed the Letter of Credit (LOC) dated 31/01/2018 which is financial provision for CRAMP. On the basis of the information provided, the EPA approved the revised financial provision. The LOC terminates on the expiry date of the 24/11/2032.

22.0 ELRA Review

The ELRA financial provision mechanism was reviewed in 2017 and approved by the Agency on the 19 December 2017. A further review of the ELRA regarding risk assessments will take place in 2018.

23.0 Waste Pre-Treatment Proposals

Only residual municipal solid waste is accepted at the Dublin Waste to Energy facility as per EPA license W0232-01. The residual waste is sourced predominately from a 3 bin collection system or by source segregation at the waste producer's premises.

No pre-treatment of waste takes place at the Dublin Waste to Energy facility.

APPENDIX 1

E-PRTR 2017 Report

Guidance to completing the PRTR workbook

PRTR Returns Workbook

Version 1.1.19

REFERENCE YEAR	2017

1. FACILITY IDENTIFICATION

Parent Company Name	Dublin Waste to Energy Limited
Facility Name	Dublin Waste to Energy Limited
PRTR Identification Number	W0232
Licence Number	W0232-01

Classes of Activity

No.	**class_name**
-	Refer to PRTR class activities below

Address 1	Pigeon House Road
Address 2	Poolbeg Peninsula
Address 3	Dublin 4
Address 4	
	Dublin
Country	Ireland
Coordinates of Location	-6.20038 53.339
River Basin District	IEEA
NACE Code	3821
Main Economic Activity	Treatment and disposal of non-hazardous waste
AER Returns Contact Name	Mark Heffernan
AER Returns Contact Email Address	mheffernan@covanta.com
AER Returns Contact Position	Environment Management
AER Returns Contact Telephone Number	01 6032122
AER Returns Contact Mobile Phone Number	086 3860942
AER Returns Contact Fax Number	
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	60
User Feedback/Comments	
Web Address	www.covantadublin.ie

2. PRTR CLASS ACTIVITIES

Activity Number	**Activity Name**
5(b)	Installations for the incineration of non-hazardous waste in the scope of Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste
5(c)	Installations for the disposal of non-hazardous waste
50.1	General

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

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

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

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

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

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs					
POLLUTANT		METHOD						QUANTITY		
			Method Used		A2-1	A2-2	A2-3			
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	Emission Point 2	Emission Point 3	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
17	Arsenic and compounds (as As)	M	EN 14385:2004		0.0	0.0	0.0	0.0	0.0	0.0
18	Cadmium and compounds (as Cd)	M	EN 14385:2004		1.0	1.0	0.0	2.0	0.0	0.0
21	Mercury and compounds (as Hg)	M	EN 14385:2004		1.0	1.0	0.0	2.0	0.0	0.0
24	Zinc and compounds (as Zn)	M	EN 14385:2004		1.0	1.0	0.0	2.0	0.0	0.0
47	PCDD + PCDF (dioxins + furans)(as Teq)	M	EN 1948-1 to3:2003		0.000002	0.0	0.0	0.000002	0.0	0.0
80	Chlorine and inorganic compounds (as HCl)	M	EN 1911-1 to 3:2003		24.0	43.0	0.0	67.0	0.0	0.0
84	Fluorine and inorganic compounds (as HF)	M	ISO/DIS 15713:2004		74.0	47.0	0.0	121.0	0.0	0.0
86	Particulate matter (PM10)	M		BS EN ISO 23210	145.0	165.0	5.0	315.0	0.0	0.0
02	Carbon monoxide (CO)	M	EN 15058:2004		4849.0	5639.0	107.0	10595.0	0.0	0.0
07	Non-methane volatile organic compounds (NMVOC)	M	EN 13649:2001		724.0	548.0	22.0	1294.0	0.0	0.0
08	Nitrogen oxides (NOx/NO2)	M	EN 13211:2001	TGN M22	109938.0	119931.0	916.0	230785.0	0.0	0.0
11	Sulphur oxides (SOx/SO2)	M	EN 14791:2005	TGM M22	1573.0	894.0	0.0	2467.0	0.0	0.0

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

SECTION B : REMAINING PRTR POLLUTANTS

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

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

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

RELEASES TO AIR					Please enter all quantities in this section in KGs					
POLLUTANT		METHOD						QUANTITY		
			Method Used		A2-1	A2-2	A2-3			
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	Emission Point 2	Emission Point 3	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
347	**Total heavy metals**	M	EN 14385:2004		56.0	64.0	0.0	120.0	0.0	0.0

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

Additional Data Requested from Landfill operators

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

Landfill: Dublin Waste to Energy Limited

Please enter summary data on the quantities of methane flared and / or utilised			Method Used			
	T (Total) kg/Year	**M/C/E**	**Method Code**	**Designation or Description**	**Facility Total Capacity m3 per hour**	
Total estimated methane generation (as per sit model)	0.0				N/A	
Methane flared	0.0				0.0	(Total Flaring Capacity)
Methane utilised in engine/s	0.0				0.0	(Total Utilising Capacity)
Net methane emission (as reported in Sectio A above)	0.0				N/A	

4.2 RELEASES TO WATERS

Link to previous years emissions data

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

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

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

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

SECTION B : REMAINING PRTR POLLUTANTS

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

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

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

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

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

SECTION A : PRTR POLLUTANTS

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

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

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

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

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

4.4 RELEASES TO LAND

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

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

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

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

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

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

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

Please enter all quantities on this sheet in Tonnes

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
To Other Countries	19 01 11	Yes	38159.0	bottom ash and slag containing dangerous substances	R4	M	Weighed	Abroad	Rock Solid BV,KVK37.122.953	Keesomstraat,10g,1821 BS Alkmaar,.,Netherlands		Keesomstraat,10g,1821 BS Alkmaar,.,Netherlands
To Other Countries	19 01 07	Yes	9527.0	solid wastes from gas treatment	R5	M	Weighed	Abroad	K&S Kali GmbH Werk Werra,F73V10010	UTV Hattorf-Wintershall (Standort Hattorf),.,DE D-36269 Philippsthal,.,Germany		UTV Hattorf-Wintershall (Standort Hattorf),.,DE D-36269 Philippsthal,.,Germany
Within the Country	19 01 07	Yes	149.98	solid wastes from gas treatment	R5	M	Weighed	Offsite in Ireland	RILTA Environmental Ltd,IRE/AG019/17	Greenogue Business Park,Block 402 ,Rathcoole,.,Ireland		Greenogue Business Park,Block 402 ,Rathcoole,.,Ireland
Within the Country	13 07 01	Yes		fuel oil and diesel	R9	M	Weighed	Offsite in Ireland	RILTA Environmental Ltd,IRE/AG019/17	Greenogue Businees Park ,Block 402,Rathcoole,.,Ireland		Greenogue Businees Park ,Block 402,Rathcoole,.,Ireland
Within the Country	20 01 21	Yes	0.01	fluorescent tubes and other mercury-containing waste	D9	E	Volume Calculation	Offsite in Ireland	RILTA Environmental Ltd,IRE/AG019/17	Greenogue Business Park,Block 402 ,Rathcoole,.,Ireland	Irish Lamp Recycling Ltd, WFP-KE-14-0072-01, Woodstock Industrial Estate, Athy, Co.Kildare	

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

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

APPENDIX 2

Annual GW1 2017 Report

Contact Name:	Raymond Derrig	**Date Sampled:**	15/11/2017
Customer Name:	Covanta	**Date Received:**	15/11/2017
Address:	Dublin Waste To Energy	**Sample Location:**	DWTE
	Poolbeg		
	Dublin		
	Ireland	**Sample Type:**	Water
Sample Condition:	Satisfactory	**Sample Description:**	GW1 (MW1)
Sample ID:	J5921	**Grab/Composite:**	Grab

TEST REPORT

Parameter	Result	Units	Method	Accreditation Status
Time	12:30	n/a	n/a	***
Depth To Groundwater	4.44	m	n/a	***
Weather	Dry/ Sunny	n/a	n/a	***
Odour	No Smell	n/a	n/a	***
Sample Condition	Clear	n/a	n/a	***
Tide	Mid	n/a	n/a	***
Arsenic (total)	6	µg/l	Sub-C	***
Cadmium (total)	<1	µg/l	Sub-C	***
Cobalt (total)	<1	µg/l	Sub-C	***
Copper (total)	9	µg/l	Sub-C	***
Chromium (total)	9	µg/l	Sub-C	***
Lead (total)	7	µg/l	Sub-C	***
Manganese (total)	40	µg/l	Sub-C	***
Mercury (total)	<0.1	µg/l	Sub-C	***
Nickel (total)	36	µg/l	Sub-C	***

Contact Name:	Raymond Derrig	**Date Sampled:**	15/11/2017
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	Poolbeg		
	Dublin		
	Ireland	**Sample Type:**	Water
Sample Condition:	Satisfactory	**Sample Description:**	GW1 (MW1)
Sample ID:	J5921	**Grab/Composite:**	Grab

TEST REPORT

Parameter	Result	Units	Method	Accreditation Status
Thallium (total)	<1	µg/l	Sub-C	***
Tin (total)	2	µg/l	Sub-C	***
Vanadium (total)	172	µg/l	Sub-C	***
Potassium (total)	34	mg/l	Sub-C	***
Dissolved Oxygen	1.23	mg/l O2	SOP-LTM-012	***
Aldrin	<0.01	µg/l	Sub-C	***
alpha-Hexachlorocyclohexane (HCH)	<0.01	µg/l	Sub-C	***
beta-Hexachlorocyclohexane (HCH)	<0.01	µg/l	Sub-C	***
Chlorothalonil	<0.01	µg/l	Sub-C	***
cis-Chlordane	<0.01	µg/l	Sub-C	***
Dieldrin	<0.01	µg/l	Sub-C	***
Endosulphan Sulphate	<0.01	µg/l	Sub-C	***
Endosulphan I	<0.01	µg/l	Sub-C	***
Endosulphan II	<0.01	µg/l	Sub-C	***
Endrin	<0.01	µg/l	Sub-C	***

Contact Name:	Raymond Derrig	**Date Sampled:**	15/11/2017
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	Dublin		
	Ireland	**Sample Type:**	Water
Sample Condition:	Satisfactory	**Sample Description:**	GW1 (MW1)
Sample ID:	J5921	**Grab/Composite:**	Grab

TEST REPORT

Parameter	Result	Units	Method	Accreditation Status
gamma-Hexachlorocyclohexane (HCH / Lindane)	<0.01	µg/l	Sub-C	***
Heptachlor	<0.01	µg/l	Sub-C	***
Heptachlor Epoxide	<0.01	µg/l	Sub-C	***
Hexachlorobenzene SUBCON Alcontrol OCP	<0.01	µg/l	Sub-C	***
Isodrin	<0.01	µg/l	Sub-C	***
o,p-DDE	<0.01	µg/l	Sub-C	***
o,p-DDT	<0.01	µg/l	Sub-C	***
o,p-Methoxychlor	<0.01	µg/l	Sub-C	***
o,p-TDE (DDD)	<0.01	µg/l	Sub-C	***
p,p-DDT	<0.01	µg/l	Sub-C	***
p,p-Methoxychlor	<0.01	µg/l	Sub-C	***
p,p-DDE	<0.01	µg/l	Sub-C	***
p,p-TDE (DDD)	<0.01	µg/l	Sub-C	***
Pendimethalin	<0.01	µg/l	Sub-C	***
Permethrin I	<0.01	µg/l	Sub-C	***

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	Poolbeg		
	Dublin		
	Ireland	**Sample Type:**	Water
Sample Condition:	Satisfactory	**Sample Description:**	GW1 (MW1)
Sample ID:	J5921	**Grab/Composite:**	Grab

TEST REPORT

Parameter	Result	Units	Method	Accreditation Status
Permethrin II	<0.01	µg/l	Sub-C	***
Quintozene; (PCNB)	<0.01	µg/l	Sub-C	***
Tecnazene	<0.01	µg/l	Sub-C	***
Telodrin	<0.01	µg/l	Sub-C	***
trans-Chlordane	<0.01	µg/l	Sub-C	***
Triadimefon	<0.01	µg/l	Sub-C	***
Triallate	<0.01	µg/l	Sub-C	***
Trifluralin	<0.01	µg/l	Sub-C	***
Conductivity	3480	µS/cm @ 20ºC	SOP-LTM-010	***
Temperature	11.4	°Celsius	SOP-LTM-012	***
pH	6.95	pH units	SOP-LTM-004	***
Ammonia	<0.08	mg/l NH3-N	SOP-LTM-007	***
Date Deployed	19-Oct-17	n/a	n/a	***
Maximum Depth to Groundwater	4.513	mbgl	n/a	***
Minimum Depth to Groundwater	4.243	mbgl	n/a	***

Contact Name:	Raymond Derrig	**Date Sampled:**	15/11/2017
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	Poolbeg		
	Dublin		
	Ireland	**Sample Type:**	Water
Sample Condition:	Satisfactory	**Sample Description:**	GW1 (MW1)
Sample ID:	J5921	**Grab/Composite:**	Grab

TEST REPORT

Parameter	Result	Units	Method	Accreditation Status
Fluctuation	0.270	m	n/a	***
2,4,5-Trichlorophenol	<1	µg/l	Sub-C	***
2,4,6-Trichlorophenol	<1	µg/l	Sub-C	***
2,4-Dichlorophenol	<1	µg/l	Sub-C	***
2,4-Dimethylphenol	<1	µg/l	Sub-C	***
2,4-Dinitrotoluene	<1	µg/l	Sub-C	***
2,6-Dinitrotoluene	<1	µg/l	Sub-C	***
2-Chloronapthanlene	<1	µg/l	Sub-C	***
2-Chlorophenol	<1	µg/l	Sub-C	***
2-Methylnapthalene	<1	µg/l	Sub-C	***
2-Methylphenol	<1	µg/l	Sub-C	***
2-Nitrophenol	<1	µg/l	Sub-C	***
4-Bromophenyl phenyl ether	<1	µg/l	Sub-C	***
4-Chloro-3-methylphenol	<1	µg/l	Sub-C	***
Bis(2-chloroisopropyl)ether	<1	µg/l	Sub-C	***

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Customer Name:	Covanta	**Date Received:**	15/11/2017
Address:	Dublin Waste To Energy	**Sample Location:**	DWTE
	Poolbeg		
	Dublin		
	Ireland	**Sample Type:**	Water
Sample Condition:	Satisfactory	**Sample Description:**	GW1 (MW1)
Sample ID:	J5921	**Grab/Composite:**	Grab

TEST REPORT

Parameter	Result	Units	Method	Accreditation Status
4-Methylphenol	<1	µg/l	Sub-C	***
4-Nitrophenol	<1	µg/l	Sub-C	***
Bis(2-Chloroethyl)ether	<1	µg/l	Sub-C	***
Bis(2-ethylhexyl)phthalate	<10	µg/l	Sub-C	***
Butylbenzyl phthalate	<1	µg/l	Sub-C	***
Carbazole	<1	µg/l	Sub-C	***
Dibenzofuran	<1	µg/l	Sub-C	***
n-Dibutylphthalate	<1	µg/l	Sub-C	***
n-Dioctylphthalate	<10	µg/l	Sub-C	***
n-Nitroso-n-dipropylamine	<1	µg/l	Sub-C	***
Diethyl phthalate	<1	µg/l	Sub-C	***
Dimethyl phthalate	<1	µg/l	Sub-C	***
Hexachlorobenzene	<1	µg/l	Sub-C	***
Pentachlorophenol	<1	µg/l	Sub-C	***
Phenol	<1	µg/l	Sub-C	***

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	Dublin		
	Ireland	**Sample Type:**	Water
Sample Condition:	Satisfactory	**Sample Description:**	GW1 (MW1)
Sample ID:	J5921	**Grab/Composite:**	Grab

TEST REPORT

Parameter	Result	Units	Method	Accreditation Status
Hexachloroethane	<1	µg/l	Sub-C	***
Nitrobenzene	<1	µg/l	Sub-C	***
Isophorone	<1	µg/l	Sub-C	***
Hexachlorocyclopentadiene	<1	µg/l	Sub-C	***
Perylene	<1	µg/l	Sub-C	***
sVOC + TICS	Appended	N/A	Sub-C	***
Acenapthene	<1	µg/l	Sub-C	**
Acenapthylene	<1	µg/l	Sub-C	**
Anthracene	<1	µg/l	Sub-C	**
Benzo(a)anthracene	<1	µg/l	Sub-C	**
Benzo(a)pyrene	<1	µg/l	Sub-C	**
Benzo(b)fluoranthene	<1	µg/l	Sub-C	**
Benzo(ghi)perylene	<1	µg/l	Sub-C	**
Benzo(k)fluoranthene	<1	µg/l	Sub-C	**
Chrysene	<1	µg/l	Sub-C	**

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	Dublin		
	Ireland	**Sample Type:**	Water
Sample Condition:	Satisfactory	**Sample Description:**	GW1 (MW1)
Sample ID:	J5921	**Grab/Composite:**	Grab

TEST REPORT

Parameter	Result	Units	Method	Accreditation Status
Dibenzo(ah)anthracene	<1	µg/l	Sub-C	**
Fluoranthene	<1	µg/l	Sub-C	**
Fluorene	<1	µg/l	Sub-C	**
Indeno(123-cd)pyrene	<1	µg/l	Sub-C	**
Napthalene	<1	µg/l	Sub-C	**
Phenanthrene	<1	µg/l	Sub-C	**
Pyrene	<1	µg/l	Sub-C	**
Bis(2-chloroethoxy)methane	<1	µg/l	Sub-C	***
Dichlorodifluoromethane	<1	µg/l	Sub-C	**
Vinyl Chloride	<1	µg/l	Sub-C	**
Bromomethane	<1	µg/l	Sub-C	**
Chloroethane	<1	µg/l	Sub-C	**
Trichlorofluoromethane	<1	µg/l	Sub-C	**
trans 1,2-Dichloroethene	<1	µg/l	Sub-C	**
Carbon Disulphide	<1	µg/l	Sub-C	**

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	Dublin		
	Ireland	**Sample Type:**	Water
Sample Condition:	Satisfactory	**Sample Description:**	GW1 (MW1)
Sample ID:	J5921	**Grab/Composite:**	Grab

TEST REPORT

Parameter	Result	Units	Method	Accreditation Status
1,1-Dichloroethene	<1	µg/l	Sub-C	**
1,1-Dichloroethane	<1	µg/l	Sub-C	**
cis 1,2-Dichloroethene	<1	µg/l	Sub-C	**
Bromochloromethane	<5	µg/l	Sub-C	**
2,2-Dichloropropane	<1	µg/l	Sub-C	**
1,2-Dichloroethane	<2	µg/l	Sub-C	**
1,1-Dichloropropene	<1	µg/l	Sub-C	**
Benzene	<1	µg/l	Sub-C	**
Carbon Tetrachloride	<1	µg/l	Sub-C	**
Dibromomethane	<1	µg/l	Sub-C	**
1,2-Dichloropropane	<1	µg/l	Sub-C	**
Bromodichloromethane	<10	µg/l	Sub-C	**
Trichloroethene	<1	µg/l	Sub-C	**
cis 1,3-Dichloropropene	<1	µg/l	Sub-C	**
trans 1,3-Dichloropropene	<1	µg/l	Sub-C	**

Contact Name:	Raymond Derrig	**Date Sampled:**	15/11/2017
Customer Name:	Covanta	**Date Received:**	15/11/2017
Address:	Dublin Waste To Energy	**Sample Location:**	DWTE
	Poolbeg		
	Dublin		
	Ireland	**Sample Type:**	Water
Sample Condition:	Satisfactory	**Sample Description:**	GW1 (MW1)
Sample ID:	J5921	**Grab/Composite:**	Grab

TEST REPORT

Parameter	Result	Units	Method	Accreditation Status
1,1,2-Trichloroethane	<1	µg/l	Sub-C	**
Toluene	<1	µg/l	Sub-C	**
1,3-Dichloropropane	<1	µg/l	Sub-C	**
Dibromochloromethane	<3	µg/l	Sub-C	**
1,2-Dibromoethane	<1	µg/l	Sub-C	**
Tetrachloroethene	<1	µg/l	Sub-C	**
Chlorobenzene	<1	µg/l	Sub-C	**
Ethylbenzene	<1	µg/l	Sub-C	**
m & p Xylene	<1	µg/l	Sub-C	**
Bromoform	<1	µg/l	Sub-C	**
Styrene	<1	µg/l	Sub-C	**
o-Xylene	<1	µg/l	Sub-C	**
1,2,3-Trichloropropane	<1	µg/l	Sub-C	**
Isopropylbenzene	<1	µg/l	Sub-C	**
Bromobenzene	<1	µg/l	Sub-C	**

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	Dublin		
	Ireland	**Sample Type:**	Water
Sample Condition:	Satisfactory	**Sample Description:**	GW1 (MW1)
Sample ID:	J5921	**Grab/Composite:**	Grab

TEST REPORT

Parameter	Result	Units	Method	Accreditation Status
2-Chlorotoluene	<1	µg/l	Sub-C	**
n-propylbenzene	<1	µg/l	Sub-C	**
4-Chlorotoluene	<1	µg/l	Sub-C	**
1,2,4-Trimethylbenzene	<1	µg/l	Sub-C	**
4-Isopropyltoluene	<1	µg/l	Sub-C	**
1,3,5-Trimethylbenzene	<1	µg/l	Sub-C	**
1,2-Dichlorobenzene	<1	µg/l	Sub-C	**
1,4-Dichlorobenzene	<1	µg/l	Sub-C	**
sec-Butylbenzene	<1	µg/l	Sub-C	**
tert-Butylbenzene	<2	µg/l	Sub-C	**
1,3-Dichlorobenzene	<1	µg/l	Sub-C	**
n-Butylbenzene	<1	µg/l	Sub-C	**
1,2-Dibromo-3-chloropropane	<2	µg/l	Sub-C	**
1,2,4-Trichlorobenzene	<3	µg/l	Sub-C	**
1,2,3-Trichlorobenzene	<3	µg/l	Sub-C	**

Contact Name:	Raymond Derrig	**Date Sampled:**	15/11/2017
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	Dublin		
	Ireland	**Sample Type:**	Water
Sample Condition:	Satisfactory	**Sample Description:**	GW1 (MW1)
Sample ID:	J5921	**Grab/Composite:**	Grab

TEST REPORT

Parameter	Result	Units	Method	Accreditation Status
Hexachlorobutadiene	<1	µg/l	Sub-C	**
Chloromethane	<10	µg/l	Sub-C	***
Dichloromethane	<5	µg/l	Sub-C	***
Chloroform	<1	µg/l	Sub-C	***
1,1,1-Trichloroethane	<1	µg/l	Sub-C	**
1,1,1,2-Tetrachloroethane	<1	µg/l	Sub-C	***
1,1,2,2-Tetrachloroethane	<1	µg/l	Sub-C	***
VOC TICS	None Detected	N/A	Sub-C	***

Comments:	

Signed: Niall Mathews **Date:** 07/12/2017

Mr Niall Mathews - Laboratory Supervisor

The above results relate to the sample(s) tested.
This report shall not be reproduced unless all data is included and by agreement with The Water Lab.

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* INAB accredited
** Accredited by Sub-con lab
*** Non-accredited

Version 02

Test Report Notes

Accreditation Status

Accreditation Status is denoted as follows:

* INAB accredited to ISO 17025

** Accredited by Sub-con Lab to ISO 17025

*** Non-accredited

Sub-contracted accreditation is provided by the sub-con lab's own accreditation provider.

Microbiological Analysis

The results obtained from microbiological testing in cfu/100ml should be interpreted as follows:

0 cfu/100ml	- Not detected in the volume of sample analysed
1 - 3 cfu/100ml	- Less than 4 cfu/100ml detected
4 - 9cfu/100ml	- Estimated result