Unit 15
Melbourne Business Park
Model Farm Road
Cork

O'Callaghan Moran & Associates
ENVIRONMENTAL MANAGEMENT FOR BUSINESS

E:info@ocallaghanmoran.com
www.ocallaghanmoran.com
T: 021 434 5366

ANNUAL ENVIRONMENTAL REPORT

STARRUS ECO HOLDINGS LTD

FASSAROE MATERIALS RECOVERY FACILITY

FASSAROE, BRAY,

COUNTY WICKLOW

LICENCE NO. W0053-03

JANUARY – DECEMBER 2014

Prepared For: -

Starrus Eco Holdings Ltd,
(Greenstar)
Unit 6,
Ballyogan Business Park,
Ballyogan Road,
Sandyford,
Dublin 18

Prepared By: -

O' Callaghan Moran & Associates,
Unit 15 Melbourne Business Park,
Model Farm Road,
Cork.

31st March 2015

Project	Annual Environmental Report 2014			
Client	Starrus Eco Holdings Ltd (Greenstar) W0053-03			
Report No	Date	Status	Prepared By	Reviewed By
0480605	26/03/2015	Draft	Barry Sexton MSc.	Neill Sandes P.Geo
0480605	31/03/2015	Final	Barry Sexton MSc.	Neill Sandes P.Geo

TABLE OF CONTENTS

PAGE

1. INTRODUCTION

This is the 2014 Annual Environmental Report (AER) for the Starrus Eco Holdings Ltd (Greenstar), Materials Recovery & Transfer facility (MRF) at Fassaroe, County Wicklow. It covers the period from the 1st January 2014 to the 31st December 2014. Transfer of the licence from Greenstar Limited to Starrus Eco Holdings Ltd was completed in March 2014.

The content is based on Schedule G of the Waste Licence (Reg. No. W0053-03) and the report format follows guidelines set in the "Guidance Note for Annual Environmental Report" issued by the Environmental Protection Agency (Agency)[1]. Account is also taken of the AER Draft Guidance Document and AER Information Templates issued by the Agency in January 2013[2].

[1] EPA (Environmental Protection Agency) 1999 Waste Licensing – Draft Guidance on Environmental Management Systems and Reporting to the Agency

[2] EPA (Environmental Protection Agency) 2012 Draft AER Guidance Document

2. SITE DESCRIPTION

2.1 Site Location & Layout

The facility is located close to the N11 at Fassaroe, Bray, County Wicklow. The site comprises three main waste processing buildings, the original transfer building located close to the site entrance at the southern side of the site and adjoining Phase 1 & 2 waste processing buildings which are located in the centre of the site. There is also an new administration building incorporating office, canteen and toilet facilities; a vehicle wash; 2 no. weighbridges and a weighbridge office; office type portacabins (formerly used as offices); truck and empty skip parking areas and vehicle maintenance shed which is adjacent the original transfer building. There is a surface water retention lagoon to the east of the processing building.

2.2 Waste Management Activities

The depot is an integrated waste management facility. The licence allows for the following activities:

- bulking of municipal solid waste prior to transfer off-site for disposal;
- in-vessel composting of biodegradable waste;
- wood shredding;
- processing/storage of dry recyclables;
- recovery of construction and demolition waste;
- acceptance of waste at a civic waste facility, which includes hazardous waste such as bonded asbestos waste, WEEE and chlorofluorocarbons.

With the exception of composting, which has not yet started, all of the other activities are on-going. In December 2009, the agency technically amended the licence to allow for a change to the hours of operation so that Greenstar can carry out indoor processing of dry mixed recyclable material on a 24-hour day, 7-day week basis in the Phase 1 processing building.

With the exception of this activity, the facility can be operated only during the hours of 7:30 to 21:00 Monday to Saturday inclusive as conditioned in the Licence.

2.2.1 Waste Type & Processes

The facility is licensed to accept a maximum of 200,000 tonnes of waste annually. This comprises the following waste types and volumes, as specified in Schedule A of the Licence: -

- Household and Commercial (143,560 tonnes),
- Construction & Demolition (54,040 tonnes),
- Hazardous (2,400 tonnes).

The following processes are carried out:

Mixed Municipal Solid Waste (MSW)

All mixed MSW containing a putrescible fraction is handled inside the original Transfer Building. The incoming waste is deposited on the floor of the building and is then either pushed into an open trailer or compacted, for removal and disposal or recovery at a licenced facility.

Dry Mixed Recyclables (DMR)

DMR is deposited onto the floor of the Phase 1 Transfer Building. Mixed DMR is separated, using a sorting line, into paper, cardboard, aluminium, steel, plastic bottles and plastic film fractions, which are then baled separately and stored pending removal for recycling. Source segregated DMR is baled directly and stored pending consignment.

Non Putrescible Commercial and Industrial (C&I)

Non putrescible C&I waste delivered by waste contractors is off-loaded in the Phase 2 building. Non putrescible C&I from the site's civic waste facility (public and commercial enterprises) is transferred to the Phase 2 building.

The processing is carried out indoors. The materials are pre sorted to remove bulky items and the remaining waste is fed into the C&I/C&D processing line. A 3D trommel is used to remove oversize items and the material then passes through a star-screener unit to remove the fine fraction containing subsoil and topsoil. Over-band magnets are used to separate ferrous metals from the waste. Material is passed through a picking station to remove metals, concrete/stone, timber, hard plastics and residual material.

The concrete/stone is sent to the on-site screener for further processing. Timber is sent to the on-site timber shredder. Metals are stored pending consignment from the site to an approved facility.

Construction and Demolition (C&D) Waste

The material is processed inside the Phase 2 building using the same processing line as for the C&I wastes described above. The fines are sent to landfill for use as cover material. The concrete/stone is sent to the on-site screener. Timber is sent to the on-site timber shredder. Metals are stored pending consignment from the site.

Wood, Timber and Green Waste

The wood and timber recovered on-site is shredded externally in the north of the site and sent off-site for disposal or recovery. Untreated timber accepted at the site is classed as A-grade timber and segregated from treated & recovered timber.

Green waste is stored pending transfer to an off-site composting facility. Although the Licence allows for in-vessel composting of biodegradable waste, this has not yet started.

Civic Amenity Area

The civic amenity area is located to the Northwest of the original Transfer Building. There are a number of closed 14 yard skips for MSW and separate bays for timber, green waste, metals and mixed wastes.

Hazardous Wastes

The Licence allows the acceptance of small volumes of hazardous waste at the civic amenity area (WEEE, bonded asbestos materials and chlorofluorocarbons). These wastes are stored in the waste quarantine area in suitable receptacles pending removal off site to approved facilities.

2.2.2 Plant List

A list of the plant in use at the facility is given in Table 2.1. The plant provides 100% duty and 50% standby for waste processing.

Table 2.1 Existing Plant

No.	Plant	Model	Processing Capacity
1	Fuchs Grab F4	MHL340	30t/hr
1	Liebherr Grab/Excavator	R914	60t/hr
1	Volvo Loading Shovel	L70E	20t/hr
1	Liebherr Loading Shovel	564	85t/hr
1	Volvo Loading Shovel	L90	85t/hr
1	Hyster Forklift		40hr/wk
2	Toyota Forklifts		40hr/wk
1	DMR Process line	Turmec	8t/hr
1	DMR Baler	Bollegraaf HBC 60	70t/day
1	Generator		standby
1	C&I/C&D Process Line	Waltec	35t/hr
1	Erin Stone Screener	Fingerscreen	400t/day
1	Hammel Timber Pre Shredder	VB 750 D	30t/hr
1	Beast Timber shredder	3680	40t/hr
1	Tractor	Massey Ferguson 4255	2hr/wk
1	MSW compactor		80t/day
1	Weighbridge 2 Scales	RiteWeigh Aran Series 18 m	62hr/wk

3. EMISSION MONITORING

Greenstar implements a comprehensive environmental monitoring programme to assess the significance of emissions from site activities. The programme for 2014 included groundwater, surface water, leachate, sewer emissions, landfill gas, noise and dust monitoring. The monitoring locations are shown on Figure 3.1. The monitoring results are submitted to the Agency at quarterly intervals. An overview of the monitoring conducted in the reporting period is presented in this Section, with summary data tables in Appendix 1.

3.1 Groundwater

There are four (4) on-site groundwater monitoring wells (BH-2, BH-5, BH-6 and BH-7). Monitoring wells BH-2, BH-5 and BH-7 are positioned downgradient of the former landfill area while BH-6 is upgradient. The upgradient monitoring well (BH-6) was installed in March 2009 to replace the previous well which was removed during construction of the administration building. This location was dry throughout 2014.

3.1.1 Groundwater Levels

Groundwater levels were recorded at quarterly intervals in each of the wells. Based on the level data the direction of groundwater flow is north easterly.

3.1.2 Groundwater Quality

Observation 2 of the Agency's audit report for the Fassaroe Depot (W0053-03) dated the 26th April 2012 relates to the fact that the existing up-gradient well (BH-6) has been dry for a number of monitoring events. The Agency required Greenstar to complete an investigation of the feasibility of using an offsite groundwater well for monitoring purposes. A report was submitted to the Agency in June 2012 following this investigation confirming that there are no offsite upgradient groundwater wells suitable for use. In the absence of a suitable alternative off-site upgradient monitoring point and, for the purposes on interpreting the groundwater monitoring results, the Agency agreed to assume that the groundwater upgradient of the Greenstar facility is typical of unpolluted Irish groundwater.

Groundwater "Warning Levels" were agreed for use by the Agency on the 17th December 2013. These Warning Levels are to be recalculated annually as part of the annual environmental report (AER) and implemented in the following reporting year.

These warning levels have been in use from Q-4 2013 onwards. The recalculated Warning levels for 2015 are summarised in Table 3.1.

Table 3.1 2015 Groundwater Warning Levels

2015 Revised Triggers	EC	Ammonia	Chloride	pH
BH-2	3.370	0.52	89.95	8.25
BH-5	3.159	0.41	72.55	8.14
BH-7	1.000	3.11	32.85	8.54

Groundwater quality was monitored at quarterly intervals. The sampling and analysis was carried out in accordance with recognised quality assurance and control procedures. The range of quarterly and annual analysis was as specified in Schedule C of the Waste Licence and includes pH, electrical conductivity, organic, inorganic and microbiological parameters. The summary of the results is included in Appendix 1.

The water quality in the three wells was generally consistent with that established in the previous monitoring and is generally reflective of the sites historic use as a landfill. The water quality in the wells on site was generally constant with 2013 with the exception of chloride in BH-5 in Q-3 2014 and ammonia in BH-7 in Q-4 2014.

The level of chloride detected at BH-5 in July (82.5mg/l) and August (90mg/l) was greater than the warning level of 74.45mg/l. The level of chloride in BH-5 was within the GTV of 24 - 187.5mg/l. The levels detected are significantly lower than the highest previously recorded at BH-5 (186mg/l in February 2003). An incident report relating to the warning level exceedence was submitted to the Agency. The elevated levels may have been related to excavation works which were taking place upgradient of BH-5 as part of surface water drainage improvement works. The drainage works included the excavation of a lagoon upgradient of BH-5. These works were ongoing in August 2014 when the additional BH-5 sample was collected. The levels of chloride detected in December 2014 were below the warning level in all wells.

In December 2014 the warning level for ammonia was exceeded at BH-7. An incident report was submitted to the Agency. The well was resampled in January following receipt of the Q-4 analysis and the level had returned to a level of 0.03mg/l which was below the warning level.

The Agency collected groundwater samples in April 2014. The Agency analysis was consistent with the routine monitoring.

3.1.3 Estimated Annual and Cumulative Quantity of Emissions to Groundwater

There are no direct emissions to groundwater. Indirect emissions include incident rainfall and storm water run-off from some of the paved areas. There were excavation works undertaken in the former landfill area during the reporting period which may have resulted in elevated levels of chloride in BH-5 in Q-3 2014.

All surface water from the paved areas is diverted away from the filled areas to the on-site surface water lagoon thereby reducing the potential indirect impact of surface water on groundwater quality. Rainwater from roofed areas is now diverted to a water harvesting tank for use in dust suppression. Section 3.2 discusses the quantities of emissions to surface water.

NOTES

LEGEND: MONITORING LOCATIONS

Denotes Monitoring Location
(BH, GAS and LEACHATE)
(SURFACE WATER, SEWER and DUST)

#	I.D.	EASTING	NORTHING
1	SE-1	324309.01	218051.50
2	BH5/GS-01	324311.85	218157.81
3	BH/GS-02	324212.67	218255.62
4	BH-6	324212.67	218266.62
5	BH-7	324330.71	217905.07
6	GS-05	324331.23	218071.80
7	GS-07	324146.36	218021.76
8	GS-08	324118.57	218049.52
9	GS-09	324094.55	218100.07
10	GS-11	324100.93	218272.43
11	L-01	324231.96	218165.23
12	L-02	324108.57	218077.92
13	L-03	324552.44	218035.59
14	SW-1	324132.36	218322.94
15	SW-2	324247.97	218240.29
16	SW-3	324326.38	218166.72
17	SW-4	324359.53	218124.20
18	SW-5	324289.90	218185.10
19	N1	324310.04	217965.54
20	N2	324313.86	218013.03
21	N3	324325.62	218143.04
22	N4	324209.97	218262.19
23	NSL1	324305.76	217858.30
24	NSL2	324299.20	217845.31
25	DS-01	324122.92	218288.56
26	DS-02	324265.71	218205.11
27	DS-03	324315.24	218005.08
28	DS-04	324161.16	218013.86

REV	DATE	DESCRIPTION	DRN	CHKD	APP
A	05.06.2008	LAYOUT	MW	JOC	JOC

O' Callaghan Moran & Associates.
Granary House, Rutland Street,
Cork, Ireland.
Tel. (021) 4321521 Fax. (021) 4321522
email : info@ocallaghanmoran.com

CLIENT

GREENSTAR

TITLE

SITE LAYOUT
FASSAROE
Monitoring Locations

SCALE	FIGURE No.	REV.
1250 A3	3.1	A

3.2 Surface Water

The surface water drainage system in and around the site is dominated by the proximity of the Glenmunder Stream along the north eastern boundary. The Glenmunder ultimately drains to the River Dargle, which is a designated salmonid river. Surface water run-off from the roof of the new administration building and new car park area discharges to the Glenmunder via a silt trap and oil interceptor.

Surface water quality is monitored at four locations (SW-1, SW-2, SW-3 and SW-4) on the Glenmunder and at one discharge point from the facility to the Glenmunder (SW-5). SW-1 is upstream of the site, SW-2 and SW-3 are along the site boundary and SW-4 is downstream of the site. SW-5 is the discharge point for rainfall runoff from the roof of the administration building and the car park area to the Glenmunder. Quarterly surface water sampling was carried out at all surface water locations in 2014.

The monitoring was conducted at quarterly intervals and included in-situ and laboratory testing. The range of analysis was as specified in Schedule C of the Waste Licence and includes dissolved oxygen, pH, electrical conductivity, and organic and inorganic parameters. The sampling and analysis was carried out in accordance with recognised quality assurance and control procedures. A summary of the monitoring results are included in Appendix 1.

The monitoring has confirmed that the surface water quality is generally consistent with that in a rural area and there is no evidence that site activities or the surface water discharge at SW-5 is impacting on the stream. Ammonia, COD, and total suspended solids were detected at SW-5 throughout the year at levels greater than detected in the Glenmunder. The levels of indicator parameters including pH, conductivity, total suspended solids, chloride, ammonia, BOD and COD detected upstream and downstream of SW-5 indicate that the site is not having any impact on the surface water quality downstream of the site.

The Agency collected surface water samples in April 2014. The Agency analysis was consistent with the routine monitoring.

The last biological assessment of the Glenmunder River was submitted to the Agency on the 11th November 2013. A biological assessment is carried out every two years and will be carried out again in 2015. The 2013 assessment showed a slight drop in water quality since 2011. The Q value is now Q2-3 indicating the stream is moderately polluted. Water quality in 2013 both up and down stream is classed as poor and at risk. There are no significant differences recorded between the upstream and downstream location therefore it is assumed that the drop in quality can be ascribed to an impact occurring upstream of SW-1.

3.3 Wastewater

Wastewater from the facility (floor wash downs, vehicle washing) discharges to the municipal foul sewer. A wastewater sample was collected monthly from monitoring location SE-1. It was not possible to collect samples in September 2014, as there was no flow at the monitoring location. The range of analysis was as specified in Schedule C of the licence and included pH, COD, BOD, suspended solids, sulphates, oils, fats and greases, mineral oils and

detergents. The monitoring results are included in Appendix 1. The facility was 100% compliant with the Emission Limit Values (ELVs) set in the Licence in 2014.

3.4 Leachate

Leachate is generated by rainfall in the former landfill area. There are three leachate monitoring wells the locations of which are shown on the drawing in Figure 3.1.

3.4.1 Leachate Levels

Levels were monitored at monthly intervals during the reporting period. In general the wells were either dry or contained very small volumes of liquid at the base which could not be sampled. As these wells have been consistently dry OCM investigated the feasibility of using the on-site gas wells as leachate monitoring points. The gas wells GS-07 and GS-08 were identified as suitable leachate monitoring points.

3.4.2 Leachate Quality

Leachate samples were collected from GS-07 and GS-08 in Q-3 and Q-4. The results are not indicative of either the presence of a typical landfill leachate, or significant leachate contamination at these locations. Both locations are within the waste body but are located at the upgradient side and are close to the interface between the waste body and natural ground. The leachate results are summarised in Appendix 1.

3.5 Landfill Gas

Monitoring was carried out in accordance with Schedule C of the Waste Licence. The monitoring locations specified in the Licence include seven landfill gas wells (GS-05, GS-07, GS-08, GS-09, GS-10 and GS-11), the groundwater monitoring wells (BH-2, BH-5, BH-6 and BH-7) and the leachate boreholes (L-01, L-02 and L-03).

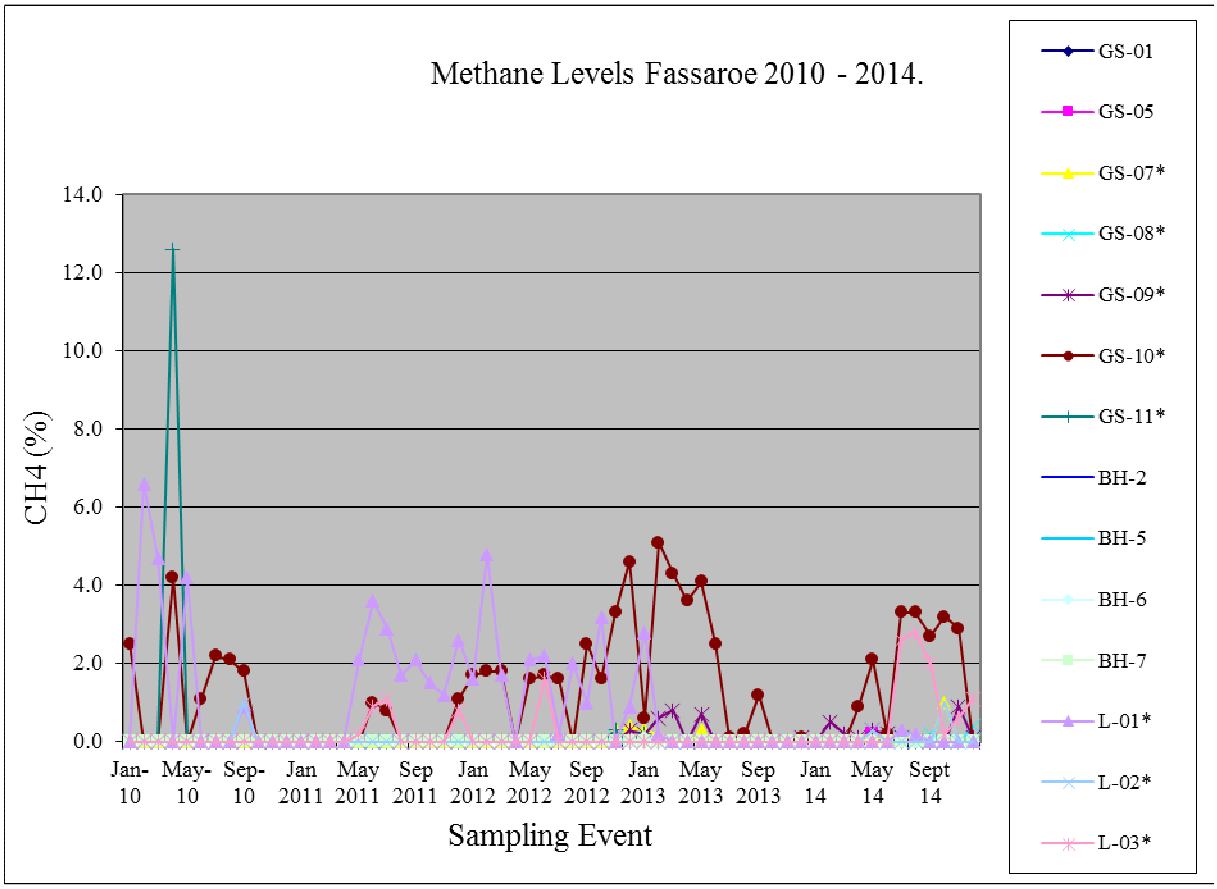
GS-01, GS-05, BH-2, BH-5, BH-6 and BH-7 are located outside the fill area. GS-07, GS-08, GS-09, GS-10, GS-11, L-01, L-02 and L-03 are located in the fill area. The nearest buildings to the filled area are the waste processing buildings and the site offices. OCM conducted gas monitoring in the waste processing buildings and the site offices during all monitoring events and the results are included in Appendix 1. The monitoring did not detect the presence of carbon dioxide or methane in any of the buildings.

Out of one hundred and sixty one landfill gas measurements made during the reporting period, methane was detected on ten (10 No.) occasions in wells located in the fill area. The highest level detected was 3.3% in GS-10 in August 2014. Methane was not detected above the trigger level in any of the wells outside the waste body. Methane trend data is presented in Figure 3.2. Carbon Dioxide was measured at levels above the trigger level (1.5% v/v) on thirteen (13 No.) occasion in wells outside the waste body. The highest level detected was

6.4% at GS-04. These elevated levels on BH-5 in July and August were thought to be related to excavation on site during the surface water drainage system upgrade works.

The exceedances of the carbon dioxide trigger levels have neither been immediately reported nor treated as incidents issued as the levels are not unexpected i.e. they are not the result of incidents. Instead, to the Agency's satisfaction and agreement, results have been discussed in each quarterly report submitted for the facility.

Figure 3.2 Methane Levels 2010-2014.



3.5.1 Landfill Gas Volumes

The occasional elevated carbon dioxide concentrations and the occasional presence of methane indicate that some degree of degradation of organic waste is occurring within the fill area. Based on the available information on the site history it appears that some biodegradable material may historically have been deposited at the site. The monitoring results do not indicate that landfill gas is migrating from the former fill area.

Given that the type and quantity of the biodegradable waste deposited on-site is not known, it is impossible to predict the volumes of landfill gas that may be generated. However, the monitoring results indicate that the volume of such degradable material is likely to be small and will reduce over time.

3.5.2 Landfill Gas Control

The design of the recently constructed structures at the site, specifically the Phase 2 processing building and the new administration building, incorporate sub-surface landfill gas protection measures and recent landfill gas monitoring in buildings around the site have not detected methane or elevated levels of carbon dioxide. There is no landfill gas control system on-site. The landfill gas concentrations measured in the routine monitoring programme indicate there is no need for such control measures. However, this will be kept under review based on the results of the on-going landfill gas monitoring programme.

3.6 Noise Survey

The annual noise survey was carried out in accordance with International Standard ISO 1996-2 Acoustics – Description, measurement and assessment of environmental noise, Part 2: Determination of environmental noise levels (2007) and EPA document NG4 Guidance note for noise: Licence applications, surveys and assessments in relation to scheduled activities (2012). The survey measured daytime and night-time noise levels at four boundary stations (N1-N4) and two offsite stations (NSL1 and NSL2). The facility was found to be in compliance with the licence conditions.

Daytime $L_{Aeq\ 30\ min}$ levels at the onsite stations N1-N4 were 44-61 dB. Site noise sources were audible to varying degrees at all four. Night-time $L_{Aeq\ 30\ min}$ levels measured 33-41 dB, with site activities slightly audible at three stations. The 55 dB daytime and 45 dB night-time limits specified in the licence do not apply to these stations.

$L_{Aeq\ 30\ min}$ levels recorded at the noise sensitive locations NSL1 and NSL2 were 48 dB and 58-60 dB respectively during the daytime. Offsite noise sources, particularly road traffic, affected both. The contribution from the Greenstar facility was estimated at 47-48 dB at NSL1, and less than 48 dB at NSL2, chiefly resulting from truck movements through the entrance and weighbridge area. This contribution is lower than the 55 dB daytime limit.

Night-time operations, when present, were slightly audible at NSL1, giving rise to a contribution of 36 dB. Operations were not audible at NSL2. If follows that night-time emissions were less than the 45 dB night-time limit. Greenstar operations did not give rise to tones or impulses at any station during the daytime or night-time.

3.7 Dust Monitoring

Dust monitoring is carried out monthly at four monitoring locations, DS-01, DS-02, DS-03 and DS-04. DS-01 is located at the northern portion of the facility within the site boundaries and approximately 250 m from the nearest sensitive receptor. DS-02 is located away from operational areas, close to a formerly vegetated area along the northern boundary. This location is at the edge of the car park for the administration building. DS-03 is located within the site boundary close to the car park and to the east of the site weighbridges. DS-04 is located on the southern boundary of the facility at the top of an embankment. The site was 100% compliant with the dust limit (the limit is 350mg/m^2/day).

4. SITE DEVELOPMENT WORKS

4.1 Specified Engineering Works

Phase two of the site drainage works upgrading project was completed in Q3 of 2014. This involved the following:

- upgrading of the surface water network site wide;
- the diversion of surface water to foul from all paved areas adjacent to processing buildings:
- the installation of a holding lagoon;
- the upgrading of the foul pumps;
- the installation of kerbing to delineate permeable and non-permeable areas of the site.

4.2 Site Restoration

No site restoration works were carried out in 2014.

4.3 Site Development

Upgrades were made to both the DMR and C&I processing lines in 2014.

4.4 Summary of Resource & Energy Consumption

Table 4.1 presents an estimate of the resources used on-site during the reporting period.

Table 4.1 Estimates of Resources Used On-Site 2014

Resources	2013	2014
Diesel	138,530 litres	198,100 litres
Hydraulic, Transmission and Engine Oil	8,371 litres	3,536 Hydraulic 3,134 Engine Oil
Gear Oil	40litres	180litres
Electricity	901,388 kWh	712,448
Gas	85,741 kWh	58,839KWH

5. WASTE RECEIVED AND CONSIGNED FROM THE FACILITY

Table 5.1 shows the quantities of wastes accepted and consigned for the reporting period. A more detailed description of the wastes received and consigned in 2014 is presented in the PRTR submission in Appendix 3.

The total quantity of waste received was 145,839.48 tonnes and the total amount consigned was 149,928.57 tonnes. The waste received and consigned in 2014 and 2013 are presented in Tables 5.1 and 5.2. For comparative purposes the amounts of waste received and consigned from 2006 to 2014 are presented in Table 5.3. As per Condition 11.12 of the Licence all the wastes consigned from the site went to authorised recovery and disposal facilities and a copy of the relevant Facility Permit or Waste Licences retained on site for Agency inspection.

The records show that more waste was consigned from the site than accepted. The difference was 3,928.73 tonnes. This is due to material being stored in the facility at the end of 2013 prior to consignment in Q-1 2014.

Table 5.1 Waste Received and Consigned 2014

EWC	Description	Waste In	Waste Out
110110	LDF Filter Cake	64.50	
130208	Engine Oils		1.60
150101	Cardboard Packaging	2,711.68	6,717.33
150102	Plastic Packaging	261.07	2,436.39
150103	Wooden Packaging	593.57	22.50
150104	Metal Packaging	33.53	312.53
150106	Mixed Packaging	23,189.22	2,843.71
150109	Textile Packaging	3.35	
160505	Gas Cylinders		1.56
170203	Plastic	26.08	13.64
170402	Aluminium Tubes	1.82	13.01
170904	C&D Inert Mixed	2,611.56	
190801	LDF Screening	90.53	249.60
190802	Grit	93.00	
191207	Wood	118.12	5,394.36
191209	C&D Inert Mixed	918.52	29,214.17
191210	Solid Recovered Fuel (SRF)	1.58	
191212	C&I Dry Mixed	12,482.33	64,794.77
200101	Cardboard & Paper	3,702.31	12,386.61
200102	Glass	4.90	
200108	Biodegradable Kitchen & Canteen Waste	1,340.80	1,083.56
200111	Textile	69.31	
200133	Batteries		0.90
200135	REC Electronics & Electrics	0.99	
201036	WEE		8.26
200138	Wood	1,574.96	
200139	Plastic	69.67	122.80
200140	Metal	169.20	1,711.35
200201	Green Biodegradable Waste	1,233.64	1,185.04
200301	MSW Municipal Mixed	26,465.31	14,545.85
200303	LDF Street Cleaning	2,677.40	2,720.65
200307	C&I Dry Mixed	65,330.55	4,148.38
	Total Received	145,839.48	
	Total Consigned		149,928.57
	Total Disposed		67,473.33
	Total Recovered		82,455.24
	Recovery Rate (%)		55.00

Table 5.2 Waste Received & Consigned 2013

EWC	Description	Waste In	Waste Out
020104	waste plastics (except packaging)	12.20	-
070514	solid wastes other than those mentioned in 07 05 13	53.60	-
080399	wastes not otherwise specified	0.25	-
100101	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)	4.28	-
101008	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07	-	28.62
110110	sludge and filter cakes other than those mentioned in 11 01 09	28.24	-
130208	other engine, gear and lubricating oils	-	2.40
150101	paper and cardboard packaging	4966.82	9,050.56
150102	plastic packaging	417.84	2,569.61
150103	wooden packaging	1306.36	43.40
150104	metallic packaging	44.95	468.10
150105	composite packaging	11.60	-
150106	mixed packaging	25662.88	-
150107	glass packaging	7.97	27.10
150109	textile packaging	0.22	-
160504	gases in pressure containers (including halons) containing dangerous substances	-	1.34
160601	lead batteries	-	1.16
170201	wood	3.32	-
170203	plastic	28.76	-
170402	aluminium	-	6.36
170904	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	3118.16	-
190112	bottom ash and slag other than those mentioned in 19 01 11	-	4.28
190801	screenings	236.01	460.46
190802	waste from desanding	219.62	-
191201	paper and cardboard	-	9,533.04
191202	ferrous metal	-	1,551.93
191207	wood other than that mentioned in 19 12 06	60.76	2,441.18
191209	minerals (for example sand, stones)	1612.68	16,416.14
191212	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	8389.86	38,913.46
200101	paper and cardboard	556.80	-
200102	glass	1.75	-
200108	biodegradable kitchen and canteen waste	752.41	391.92
200111	textiles	31.14	-
200136	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	11.85	3.36
200138	wood other than that mentioned in 20 01 37	945.26	1.60
200139	plastics	52.72	98.32
200140	metals	148.25	-
200201	biodegradable waste	1367.98	3,358.92

200301	mixed municipal waste	20343.24	3,230.52
200303	street-cleaning residues	138.84	22.10
200307	bulky waste	21854.49	2,319.58
200135*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components (6)	42.56	73.48
	Total Received	**92,433.67**	
	Total Consigned		**91,018.94**
	Total Disposed		**36,312.43**
	Total Recovered		**54,706.51**
	Recovery Rate (%)		**60.10**

Table 5.3 Total Tonnages Received, Consigned & Recovered in 2005-2014

Year	Total Received	Total Consigned	Total Recovered	Recovery Rate
2014	145,839.48	149,768.21	82,294.88	54.95%
2013	92,433.67	91,018.94	54,706.51	66.10%
2012	121,367.30	125,661.87	84,454.83	67.02%
2011	13,8048	155,995	92,492.16	67%
2010	142,365.00	143,248.24	64,494.98	45.02%
2009	135,386.12	122,331.95	61,297.98	50.10%
2008	152,695.89	138,814.22	10,828.00	54.34%
2007	192,679.93	198,371.37	39,186.00	54.90%
2006	170,600.44	119,836.93	80,328.43	72%
2005	178,735.42	110,077.96	60,504	50%

6. ENVIRONMENTAL INCIDENTS AND COMPLAINTS

6.1 Incidents

The routine monitoring programme identified thirteen incidences where the trigger level for carbon dioxide was exceeded as described in Section 3. Landfill gas concentrations are monitored on a monthly basis at the facility. Historically the exceedances of the carbon dioxide trigger levels have neither been immediately reported nor treated as incidents issued as the levels are not unexpected i.e. they are not the result of incidents. Instead, to the Agency's satisfaction and agreement, results have been discussed in each quarterly report submitted for the facility. A summary of the gas monitoring data is presented in Appendix 1.

6.2 Register of Complaints

Greenstar maintains a register of complaints received in accordance with Condition 11.7 of the waste licence. Two complaints were received in the reporting period. Complaints were received on the 10th January and the 23rd August from neighbouring houses, both of which related to odour. Greenstar immediately investigated each complaint and traced the odour to malodourous compactors which had just been emptied. On both occasions the material was removed immediately. Greenstar liaised with the complainants after the materials had been removed. The complainants were satisfied that the odours did not persist.

7. ENVIRONMENTAL DEVELOPMENT & CONTROL

7.1 Environmental Management Programme Report

Greenstar have implemented an Integrated Management System (IMS) in accordance with the requirements of Occupational Health and Safety Assessment Series (OHSAS) 18001:2007 and International Standard Organisation (ISO) 14001:2004 in order to manage the Health, Safety and Environmental performance of their business and to control health and safety risk and to minimise their environmental aspects and impacts.

The IMS has been developed for the achievement of continual improvement taking into the requirements of the Waste Licence Conditions. Greenstar has prepared and effectively implement documented procedures and instructions in accordance with the requirements of both the OHSAS 18001:2007 and ISO 14001:2004 and the site has been certified to these standards since 2010. The site underwent a successful external audit in September 2014.

As part of this IMS, Greenstar has developed a list of environmental, management, operating and maintenance procedures, details of which are outlined in Appendix 2. The schedule of Objectives and Targets, including their status for 2013 (Table 7.1), as well as the proposed Objectives and Targets for 2014 (Table 7.2) are presented below.

7.1.1 Site Management Structure

Details of the site management structure are given below.

Jan – March 2014
Name: Sara Smyth **Title:** Operations Manager

Training & Experience: Chartered Engineer. FAS Waste Management Course. 14 years waste management experience

Responsibilities: Daily responsibility and accountability for all aspects of Greenstar's processing divisions in Bray. Managing the waste flow process. Implementing ISO systems including environmental and H&S procedures and also meeting all KPIs.

March – Dec 2014
Name: John Richardson **Title:** Site Operations Manager

Training & Experience: Diploma in Mechanical Engineering. Has completed FAS Waste Management Course. 17 years industrial experience, all in the waste industry.

Responsibilities: Daily responsibility and accountability for all aspects of Greenstar's processing divisions in Bray. Managing the waste flow process. Implementing ISO systems including environmental and H&S procedures and also meeting all KPIs.

Name: Ger O'Reilly **Title:** Operations Supervisor

Training & Experience: Certificate in Safety & Health at Work (UCD), Certificate in Training and Continuing Education (NUI). Has completed FAS Waste Management Course. 30 years industrial experience, 8 in the waste industry.

Responsibilities: Day to day operations including direct supervision to ensure appropriate handling, processing & throughput of material in accordance with environmental and H&S procedures, and also meeting all KPIs. Providing Manual Handling & Safety Training.

7.1.2 Staff Training

Job specific equipment training and manual handling training was carried out in 2014. Deputy supervisor completed a "FAS" style environmental management course in June/July 2014 carried out in-house by Patel Tonra.

7.2 Environmental Management Programme Proposal

7.2.1 Schedule of Objectives 2014

The objectives that were achieved during this reporting period are outlined in Table 7.1.

7.2.2 Schedule of Objectives 2015

The schedule of targets and objectives for 2015 are presented in Table 7.2.

Table 7.1 Schedule of Objective and Targets 2014

No.	Objective	Target	Timescale	Responsibility & Status
1	**Environmental Training of Facility Staff**	Update training presentation and ensure training of key managerial staff	**Q-2/Q-3**	**Site Management Ongoing**
2	**Pollution Prevention**	Strive to ensure that monitoring results comply with the licence limits and investigate any exceedances of emission limit values.	**Q1-Q4**	**Site Management Ongoing**
3	**Waste Storage**	Review waste wood processing & storage practices taking account of the recent Agency Position Paper on the Management of Wood Waste	**Q1-Q4**	**Site Management Ongoing**
4	**Odour Management**	Compile an Odour Management Plan for the facility and include it on the training matrix referred to in Objective 1	**Q1-Q4**	**Site Management To be actioned in 2015**

5	**Development and adoption of Fire Prevention Procedure at the facility**	Reduce risk of fire and enable early detection	**Q-2**	**Site Management Complete – procedures updated and new fire detection (aspiration) system installed in Jan 2015**
6	**Review of Emergency Response Plan to incorporate fire prevention procedure and new structure**	Revision of Plan and additional training for site personnel	**Q-2**	**Site Management ERP to be further updated in 2015 to incorporate newly installed aspiration system**
7	**Achieve re-certification to ISO 14001 and OHSAS 18001 standard**	3 year certification period expires in 2014. The facility requires re-certification.	**Q-3/Q-4**	**Site Management/EHS Completed in Sept 2014**
8	**Develop and maintain traffic management plan at the facility**	Review of all on-site traffic management	**Q-2/Q-3**	**Site Management/EHS Completed in Feb 2015**
9	**Site Signage**	Facility Notice Boards to be replaced to reflect new ownership	**Q1**	**Site Management/EHS Completed in March 2014**

Table 7.2 Schedule of Objective and Targets 2015

No.	Objective	Target	Timescale	Responsibility
1	**Document a Preventative Maintenance (PM) plan for the inspection and cleaning of plant & equipment wrt fire**	Incorporate into existing Site Inspection Database (EF-10A) and site specific PM plans	**Q1-Q2**	**Site Management/EHS**
2	**Document PM plan for all hardstand and drainage infrastructure on site**	Incorporate into existing Site Inspection Database (EF-10A)	**Q1-Q2**	**Site Management/EHS**
3	**Review EWC codes in active use group wide and implement recommendations at each site**	Review EWC codes with Finance/WIMS & advise changes to site management	**Q2-Q3**	**EHS/Finance/WIMS**
4	**Increase awareness of Odour Management on site group wide**	Specify Odour detection in Site Inspection Database (EF-10A) on a daily basis and generate actions as appropriate	**Q1-Q2**	**Site Management/EHS**
5	**Track Energy Usage on site**	Record electricity, gas, water and fuel consumption on site group wide	**Q2-Q3**	**Site Management/EHS**
6	**Install new Fire Detection (Aspiration) System**	Reduce risk of fire and enable early detection	**Q1**	**Site Management/EHS**
7	**Reassess litter netting requirement site wide**	Reduce occurrence of wind-blown litter	**Q2**	**Site Management/EHS**

7.3 Reduction of Water Demand

Greenstar upgraded the surface water drainage system as agreed with the Agency in March 2012. The works included the installation of an attenuation tank to collect the roof water from the processing building and this will be reused for dust suppression on site. This has lead to a further reduction in water usage at the facility in 2014.

7.4 Volume of Wastewater Produced and Transported off site

The total amount of wastewater produced during the reporting period was 5,100m^3 which was discharged to the municipal sewer.

7.5 Pollution Emission Register

The Pollution Emission Register (PER) has been replaced by the European Pollutant Release and Transfer Register Regulation (EC) No. 166/2006. A copy of the information submitted to the Agency via the web-based data reporting system is included in Appendix 3.

7.6 Nuisance Controls

Greenstar has contracted a vermin control company Eastern Pest Control to carry out nuisance control at the facility. Eastern Pest Control undertake a six weekly review of the vermin activity on-site along with an inspection of the bait traps that are located throughout the facility.

7.7 Tank & Pipeline Testing

Bund testing was carried out in 2013 and was confirmed to be fit for purpose. Testing will be required again in 2016. The bund report was submitted via Alder.

Pipeline integrity testing of the foul and surface water networks was carried out in June 2013 by Boyne Waste Services and the pipelines found to be watertight. Written records of this inspection are maintained on site.

7.8 Slope Stability Assessment

An assessment of the stability of the slopes was carried out in compliance with Condition 6.10 of the licence in April 2008 and was reported to the Agency as part of the 2008 AER. No

further site restoration work was carried out and therefore it was not necessary to carry out a further stability assessment.

7.9 Programme for Public Information

Greenstar is committed to setting the standard in waste management and ensuring environmental compliance in all operations. In addition, Greenstar's Environmental, Health & Safety Policy makes a specific commitment to make the policy and records available to the public and interested parties. To this end Greenstar has drawn up a Communications Programme, which details how members of the public are facilitated in accessing environmental information at the facility. Records available for public inspection on site include:-

- Environmental, Health & Safety Policy,
- Waste Licence,
- Licence Application and Review documentation,
- Monitoring Records,
- Complaints File,
- EPA Correspondence File.

Visits to the site should be arranged in advance by ringing the Facility Manager or Supervisor at 1890 600 900.

7.10 ELRA & Report on Financial Provision

A Decommissioning Management Plan (DMP) and Environmental Liabilities Risk Assessment (ELRA) including Financial Provision (FP) were submitted to the Agency in 2013 as part of the transfer of the licence which occurred in Q1 2014. Both the DMP and ELRA have been approved by the Agency.

7.11 Waste Recovery Report

The facility, which is designed to increase the recycling of biodegradable materials and reduce the volume of waste disposed to landfill, meets the needs identified in EU and national waste policy statements and contributed to the achievement of these goals as out of approximately 145,839 tonnes of waste accepted approximately 55% was sent for recovery.

7.12 Revised Closure, Restoration & Aftercare Management Plan

A revised CRAMP and ELRA was approved by the Agency in Feb 2014 during the licence transfer to Starrus Eco Holdings Ltd t/a Greenstar

8. OTHER REPORTS

8.1 European Pollutant Release and Transfer Register Regulation

Under the European Pollutant Release and Transfer Register Regulation (EC) No. 166/2006 Greenstar are required to submit information annually to the Agency. A copy of the information submitted to the Agency via the web-based data reporting system is included in Appendix 1.

APPENDIX 1

Environmental Monitoring Summary Tables

GROUNDWATER SUMMARY TABLES

Groundwater Results 2014 Fassaroe W0053-03: BH-2

Parameter	Units	1st Quarter 2014 10/02/2014	2nd Quarter 2014 08/05 2014	3rd Quarter 2014 16/07/2014	4th Quarter 2014 15/12/2014
Temperature	°C	7.9	10.4	11.7	10.1
Chloride	mg/l	31.3	35	33.7	33.2
Ammoniacal Nitrogen -N	mg/l	0.02	0.03	0.05	0.04
Conductivity	mS/cm	2.567	2.347	1.872	2.631
Dissolved Oxygen	mg/l	11	6	7	10
pH	pH Units	7.53	7.44	7.41	7.73
Nitrate	mg/l				10.1
Boron	mg/l				0.898
Calcium	mg/l				632.5
Potassium	mg/l				33.2
Sodium	mg/l				43
Magnesium	mg/l				51.5
Orthophosphate	mg/l				<0.06
Sulphate	mg/l				1,446.79
Mercury	mg/l				<0.001
Cadmium	µg/l				<0.5
Chromium	mg/l				0.0028
Copper	µg/l				<7
Iron	µg/l				<20
Manganese	µg/l				<2
Lead	µg/l				8
Nickel	µg/l				3
Zinc	µg/l				7
VOC	µg/l				ND
SVOC	µg/l				ND
Pesticides	µg/l				ND
Total Coliforms	cfu/100ml				58.3
Faecal Coliforms	cfu/100ml				<1

Groundwater Results 2014 Fassaroe W0053-03: BH-5

Parameter	Units	1st Quarter 2014 10/02/2014	2nd Quarter 2014 08/05 2014	3rd Quarter 2014 16/07/2014	4th Quarter 2014 15/12/2014
Temperature	°C	10.9	11.1	12.9	10.9
Chloride	mg/l	25.9	51.8	82.5	48.3
Ammoniacal Nitrogen -N	mg/l	0.04	0.04	0.03	0.04
Conductivity	mS/cm	1.521	1.596	1.58	1.537
Dissolved Oxygen	mg/l	9	5	8	7
pH	pH Units	7	6.97	7.09	7.07
Nitrate	mg/l				0.8
Boron	mg/l				0.138
Calcium	mg/l				354.8
Potassium	mg/l				5.5
Sodium	mg/l				36.2
Magnesium	mg/l				18.6
Orthophosphate	mg/l				<0.06
Sulphate	mg/l				459
Mercury	mg/l				<0.001
Cadmium	µg/l				<0.5
Chromium	mg/l				<0.0015
Copper	µg/l				<7
Iron	µg/l				<20
Manganese	µg/l				<2
Lead	µg/l				<5
Nickel	µg/l				<2
Zinc	µg/l				6
VOC	µg/l				ND
SVOC	µg/l				ND
Pesticides	µg/l				ND
Total Coliforms	cfu/100ml				<1
Faecal Coliforms	cfu/100ml				<1

Groundwater Results 2014 Fassaroe W0053-03: BH-7

Parameter	Units	1st Quarter 2014 10/02/2014	2nd Quarter 2014 08/05 2014	3rd Quarter 2014 16/07/2014	4th Quarter 2014 15/12/2014
Temperature	°C	9.4	10.8	12.8	10
Chloride	mg/l	27.1	27.7	26.7	27.8
Ammoniacal Nitrogen -N	mg/l	1.68	2.15	0.03	5.52
Conductivity	mS/cm	0.956	0.77	0.693	0.922
Dissolved Oxygen	mg/l	5	4	5	4
pH	pH Units	6.98	6.94	6.96	7.08
Nitrate	mg/l				<0.2
Boron	mg/l				0.084
Calcium	mg/l				173.7
Potassium	mg/l				3.2
Sodium	mg/l				20.8
Magnesium	mg/l				18
Orthophosphate	mg/l				<0.06
Sulphate	mg/l				120.28
Mercury	mg/l				<0.001
Cadmium	µg/l				<0.5
Chromium	mg/l				<0.0015
Copper	µg/l				<7
Iron	µg/l				88
Manganese	µg/l				2,587
Lead	µg/l				<5
Nickel	µg/l				<2
Zinc	µg/l				<3
VOC	µg/l				ND
SVOC	µg/l				ND
Pesticides	µg/l				ND
Total Coliforms	cfu/100ml				12,033
Faecal Coliforms	cfu/100ml				20

SURFACE WATER SUMMARY TABLES

Surfacewater Results 2014 Fassaroe W0053-03: SW-1

Parameter	Units	1st Quarter 2014 10/02/2014	2nd Quarter 2014 08/05 2014	3rd Quarter 2014 16/07/2014	4th Quarter 2014 15/12/2014
Temperature	°C	8.84	10.2	13.4	7.7
Chloride	mg/l	25.4	28.4	28.8	27
COD	mg/l	<7	<7	9	<7
BOD	mg/l	<1	1	<1	<1
Ammoniacal Nitrogen -N	mg/l	0.05	0.05	0.02	0.02
Tot. Susp. Solids	mg/l	21	<10	13	<10
Conductivity	mS/cm	0.405	0.607	0.553	0.542
Dissolved Oxygen	mg/l	11	10	10	11
pH	pH Units	8.19	8.32	8.03	8.41
Nitrate	mg/l				14.8
Calcium	mg/l				99
Magnesium	mg/l				7.4
Orthophosphate	mg/l				<0.06
Sulphate	mg/l				20.49
Mercury	µg/l				<1
Potassium	mg/l				2.5
Sodium	mg/l				15.3
Boron	mg/l				0.028
Cadmium	µg/l				<0.5
Chromium	mg/l				<0.0015
Copper	µg/l				<7
Iron	µg/l				<20
Manganese	µg/l				<2
Nickel	µg/l				<2
Lead	µg/l				<5
Zinc	µg/l				4
VOC	µg/l				ND
SVOC	µg/l				ND
Pesticides	µg/l				ND
Total Coliforms	cfu/100ml				1,119.90
Faecal Coliforms	cfu/100ml				86
- Not Required					

Surfacewater Results 2014 Fassaroe W0053-03: SW-2					
Parameter	**Units**	**1st Quarter 2014 10/02/2014**	**2nd Quarter 2014 08/05 2014**	**3rd Quarter 2014 16/07/2014**	**4th Quarter 2014 15/12/2014**
Temperature	°C	8.89	9.9	13.3	7.2
Chloride	mg/l	26	28.4	28.4	26.9
COD	mg/l	<7	<7	7	9
BOD	mg/l	<1	<1	<1	<1
Ammoniacal Nitrogen -N	mg/l	0.05	0.03	0.02	0.04
Tot. Susp. Solids	mg/l	27	<10	<10	10
Conductivity	mS/cm	0.425	0.609	0.542	0.524
Dissolved Oxygen	mg/l	11	10	10	11
pH	pH Units	8.15	8.36	8.12	8.39
Nitrate	mg/l				14.8
Calcium	mg/l				100.2
Magnesium	mg/l				7.4
Orthophosphate	mg/l				<0.06
Sulphate	mg/l				21.12
Mercury	µg/l				<1
Potassium	mg/l				2.5
Sodium	mg/l				15.3
Boron	mg/l				0.031
Cadmium	µg/l				<0.5
Chromium	mg/l				<0.0015
Copper	µg/l				<7
Iron	µg/l				<20
Manganese	µg/l				<2
Nickel	µg/l				<2
Lead	µg/l				<5
Zinc	µg/l				4
VOC	µg/l				ND
SVOC	µg/l				ND
Pesticides	µg/l				ND
Total Coliforms	cfu/100ml				1,203.30
Faecal Coliforms	cfu/100ml				67
- Not Required					

Surfacewater Results 2014 Fassaroe W0053-03: SW-3					
Parameter	**Units**	**1st Quarter 2014 10/02/2014**	**2nd Quarter 2014 08/05 2014**	**3rd Quarter 2014 16/07/2014**	**4th Quarter 2014 15/12/2014**
Temperature	°C	8.87	9.9	13.3	7.2
Chloride	mg/l	25.8	28.6	28.5	27.1
COD	mg/l	10	<7	<7	<7
BOD	mg/l	<1	<1	<1	<1
Ammoniacal Nitrogen -N	mg/l	0.05	0.03	0.02	0.02
Tot. Susp. Solids	mg/l	20	<10	20	<10
Conductivity	mS/cm	0.414	0.604	0.552	0.534
Dissolved Oxygen	mg/l	11	10	10	11
pH	pH Units	8.19	8.33	8.14	8.4
Nitrate	mg/l				15.1
Calcium	mg/l				99.6
Magnesium	mg/l				7.5
Orthophosphate	mg/l				<0.06
Sulphate	mg/l				21.75
Mercury	µg/l				<1
Potassium	mg/l				2.5
Sodium	mg/l				15.2
Boron	mg/l				0.024
Cadmium	µg/l				<0.5
Chromium	mg/l				<0.0015
Copper	µg/l				<7
Iron	µg/l				<20
Manganese	µg/l				<2
Nickel	µg/l				<2
Lead	µg/l				<5
Zinc	µg/l				4
VOC	µg/l				ND
SVOC	µg/l				ND
Pesticides	µg/l				ND
Total Coliforms	cfu/100ml				1,732.90
Faecal Coliforms	cfu/100ml				74
- Not Required					

Surfacewater Results 2014 Fassaroe W0053-03: SW-4					
Parameter	**Units**	**1st Quarter 2014 10/02/2014**	**2nd Quarter 2014 08/05 2014**	**3rd Quarter 2014 16/07/2014**	**4th Quarter 2014 15/12/2014**
Temperature	°C	8.87	9.9	13.3	7.6
Chloride	mg/l	26	28.8	28.2	27
COD	mg/l	<7	<7	<7	<7
BOD	mg/l	<1	<1	<1	<1
Ammoniacal Nitrogen -N	mg/l	0.05	0.02	0.02	0.02
Tot. Susp. Solids	mg/l	26	<10	12	<10
Conductivity	mS/cm	0.415	0.621	0.558	0.534
Dissolved Oxygen	mg/l	11	9	10	11
pH	pH Units	8.14	8.28	8.17	8.4
Nitrate	mg/l				15.5
Calcium	mg/l				99.5
Magnesium	mg/l				7.5
Orthophosphate	mg/l				<0.06
Sulphate	mg/l				22.29
Mercury	µg/l				<1
Potassium	mg/l				2.4
Sodium	mg/l				15.2
Boron	mg/l				0.029
Cadmium	µg/l				<0.5
Chromium	mg/l				<0.0015
Copper	µg/l				<7
Iron	µg/l				<20
Manganese	µg/l				<2
Nickel	µg/l				<2
Lead	µg/l				<5
Zinc	µg/l				3
VOC	µg/l				ND
SVOC	µg/l				ND
Pesticides	µg/l				ND
Total Coliforms	cfu/100ml				1,413.60
Faecal Coliforms	cfu/100ml				82

- Not Required

Surfacewater Results 2014 Fassaroe W0053-03: SW-5

Parameter	Units	1st Quarter 2013 03/03/2013	2nd Quarter 2013 02/05/2013	3rd Quarter 2013 07/10/2013	4th Quarter 2013 04/12/2013
Temperature	°C	8.67	9.9	13.5	6.8
Chloride	mg/l	42.1	28.5	27.4	27.1
COD	mg/l	55	<7	12	9
BOD	mg/l	3	1	<1	<1
Ammoniacal Nitrogen -N	mg/l	0.63	1.63	0.15	0.02
Tot. Susp. Solids	mg/l	19	14	26	12
Conductivity	mS/cm	1.174	0.618	0.574	0.526
Dissolved Oxygen	mg/l	<1	9	9	11
pH	pH Units	7.51	7.13	8.36	8.4
Nitrate	mg/l				14.9
Calcium	mg/l				99.7
Magnesium	mg/l				7.5
Orthophosphate	mg/l				<0.06
Sulphate	mg/l				21.93
Mercury	µg/l				<1
Potassium	mg/l				2.5
Sodium	mg/l				15.3
Boron	µg/l				0.024
Cadmium	µg/l				<0.5
Chromium	mg/l				<0.0015
Copper	µg/l				<7
Iron	µg/l				<20
Manganese	µg/l				<2
Nickel	µg/l				<2
Lead	µg/l				<5
Zinc	µg/l				4
VOC	µg/l				ND
SVOC	µg/l				ND
Pesticides	µg/l				ND
Total Coliforms	cfu/100ml				1,046.20
Faecal Coliforms	cfu/100ml				93

- Not Required

WASTEWATER SUMMARY TABLES

Wastewater Results 2014 Fassaroe W0053-03: SE-1

Parameter	units	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
pH	pH Units	8.87	8.21	7.28	6.84	7.29	7.68	7.34	6.78	DRY	7.3	7.15	7.01
Temperature	°C	6.8	6.5	6.8	6.8	12.3	14.1	12.4	11.9	DRY	9.9	7.9	3.9
BOD	mg/l	147	189	110	14	196	96	18	159	DRY	36	4	<1
COD	mg/l	315	N/A	N/A	73	N/A	N/A	47	N/A	DRY	N/A	41	N/A
Sulphate	mg/l	209.5	N/A	N/A	52.7	N/A	N/A	80.58	N/A	DRY	N/A	25.05	N/A
TSS	mg/l	52	N/A	N/A	48	N/A	N/A	14	N/A	DRY	N/A	197	N/A
Surfactants	mg/l	0.29	N/A	N/A	0.64	N/A	N/A	0.5	N/A	DRY	N/A	0.4	N/A
Oils, Fats & Greases	mg/l	4.9	N/A	N/A	37.8	N/A	N/A	<0.01	N/A	DRY	N/A	<0.01	N/A
Mineral Oil	mg/l	<0.001	N/A	N/A	<0.001	N/A	N/A	<0.01	N/A	DRY	N/A	<0.01	N/A

LEACHATE SUMMARY TABLES

Leachate Level Results 2014 Fassaroe W0053-03

	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
L-01	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
L-02	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
L-03	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
GS-07	7.53	7.23	7.2	7.51	7.55	7.65	7.89	7.91	8.01	7.59	7.89	7.57
GS-08	9.19	8.99	8.89	9.09	9.16	9.35	9.16	9.25	9.2	9.2	9.21	9.15

Leachate Analysis Q-1 2014

Parameters	Units	GS-07	GS-08
BOD	mg/l	1	<1
COD	mg/l	36	30

ND – denotes not present at levels greater than the detection limit

* - not analysed

Leachate Analysis Q-2 2014

Parameters	Units	GS-07	GS-08
Boron	ug/l	155	90
Cadmium	ug/l	<0.5	<0.5
Calcium	mg/l	342.2	288.7
Chromium	ug/l	<1.5	<1.5
Copper	ug/l	<7	<7
Iron	ug/l	<20	<20
Lead	ug/l	8	7
Magnesium	mg/l	24.5	18.2
Manganese	ug/l	347	365
Mercury	ug/l	<1	<1
Nickel	ug/l	4	4
Potassium	mg/l	9	5.5
Sodium	mg/l	20.7	14
Zinc	ug/l	48	15
Fluoride	mg/l	<0.3	<0.3
Sulphate	mg/l	273.39	217.23
Chloride	mg/l	23.8	17.3
Ortho Phosphate	mg/l	<0.06	<0.06
Total Oxidised Nitrogen	mg/l	<0.2	<0.2
Total Cyanide	mg/l	<0.01	<0.01
Ammonia	mg/l	0.32	0.36
BOD	mg/l	2	3
COD	mg/l	29	123
Electrical Conductivity	uS/cm	1479	1211
pH	pH units	7.2	7.12
VOC	ug/l	ND	ND
sVOC	ug/l	ND	ND
Pesticides	ug/l	ND	ND

ND – denotes not present at levels greater than the detection limit

* - not analysed

Leachate Analysis Q-3 2014

Parameters	Units	GS-07	GS-08
BOD	mg/l	2	3
COD	mg/l	11	53

ND – denotes not present at levels greater than the detection limit

* - not analysed

Leachate Analysis Q-4 2014

Parameters	Units	GS-07	GS-08
BOD	mg/l	2	1
COD	mg/l	32	19

ND – denotes not present at levels greater than the detection limit

* - not analysed

LANDFILL GAS SUMMARY TABLES

Landfill Gas Results 2014 Fassaroe W0053-03

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Trigger
Sample Station Number	**CH_4**	**CH_4**	**CH_4**	**CH_4**	**CH_4**	**CH_4**	**CH_4**	**CH_4**	**CH_4**	**CH_4**	**CH_4**	**CH_4**	Level
	(% v/v)	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**
GS-01	0	0	0	0	0	0	0	0	0	0	0	0	1.0
GS-05	0	0	0	0	0.2	0	0	0	0	0	0	0	1.0
GS-07*	0	0	0	0	0.1	0.1	0.1	0.1	0	1	0	0	1.0
GS-08*	0	0	0	0	0	0	0.1	0	0.2	0	0	0.4	1.0
GS-09*	0	0.5	0.2	0.1	0.3	0.2	0.1	0	0	0	0.9	0.1	1.0
GS-10*	0	0	0	0.9	2.1	0.2	3.3	3.3	2.7	3.2	2.9	No Access	1.0
GS-11*	0	0	0	0	0	0	0	0	0	0	0	0	1.0
BH-2	0	0	0	0	0	0	0	0	0	0	0	0	1.0
BH-5	0	0	0	0	0	0	0	0	0	0	0	0	1.0
BH-6	0	0	0	0	0	0	0	0	0	0	0	0	1.0
BH-7	0	0	0	0	0	0	0	0	0	0	0	0	1.0
L-01*	0	0	0	0	0	0	0.3	0.2	0	0	0	0	1.0
L-02*	0	0	0	0	0.3	**	**	**	**	1	**	**	1.0
L-03*	0	0	0	0	0	0	2.6	2.8	2	0.2	0.6	1.1	1.0

** - well damaged

Landfill Gas Results 2014 Fassaroe W0053-03

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Trigger
Sample Station Number	**CO_2**	**CO_2**	**CO_2**	**CO_2**	**CO_2**	**CO_2**	**CO_2**	**CO_2**	**CO_2**	**CO_2**	**CO_2**	**CO_2**	Level
	(% v/v)	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**
GS-01	0	0	0.1	0	0	0.7	2.3	1.9	1.3	0	0	0	1.5
GS-05	0	0	0	0	2.8	0.1	6.4	5.1	3.5	1.2	0.8	1.3	1.5
GS-07*	0.2	0.9	0.5	0.8	3.1	4.9	7.4	6.5	3.2	4.3	1.5	5.6	1.5
GS-08*	0	0.5	0	1.9	5	2.1	6.8	7.2	3	6.3	2.6	4.9	1.5
GS-09*	3.2	3.5	2.7	3.6	6.5	7.3	8.5	7.4	7.2	1.8	5.9	3.9	1.5
GS-10*	5	0.9	0.2	5.1	12	8.9	15	14	16.1	9.3	11	No Access	1.5
GS-11*	0.3	0	0	0	0.8	3.6	11	12.1	7.9	0.9	0	4.2	1.5
BH-2	0	0	0.1	0.2	0.9	0.6	0	0.6	1	0	0	0.4	1.5
BH-5	0	0	0	0	0	0	4.4	3.3	1.1	0	0	0	1.5
BH-6	0.2	1.3	1.5	1.2	1.6	1.4	1.5	1.8	1.6	1.2	1.4	1.4	1.5
BH-7	0.2	0.5	0.9	0.8	0.6	0.7	0.7	0.9	3.2	1	0.9	1.3	1.5
L-01*	0	0	0	0	0	0	6.6	3.5	0.9	0	2.6	1.8	1.5
L-02*	0	0	0	0	1.7	**	**	**	**	2.3	**	**	1.5
L-03*	0	0	0	0	0	2.5	11	11	12.3	3.6	3.6	10.6	1.5

** - well damaged

Landfill Gas Results 2014 Fassaroe W0053-03

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sample Station Number	**O_2**	**O_2**	**O_2**	**O_2**	**O_2**	**O_2**	**O_2**	**O_2**	**O_2**	**O_2**	**O_2**	**O_2**
	(% v/v)	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**	**(% v/v)**
GS-01	19	21.8	21.9	21	20.1	19.4	12.7	15.6	17.7	21	21	21.9
GS-05	21.5	21.8	22	21.2	19.4	21.5	5.9	14.9	16.1	19.2	20.3	20.8
GS-07*	21	19.8	21	20.1	19.2	14.1	10	13	17.4	16.2	19.9	16.8
GS-08*	21.6	21.1	21.7	19.5	15.1	17.6	12.1	12.7	17.5	13.6	18.3	14.3
GS-09*	18.3	16.3	19.3	18.4	12.9	10.7	8.6	9.2	11.4	17.3	13.1	17.3
GS-10*	13.8	20.2	21.2	15.1	3.4	7.5	0.5	0.4	1.2	2.9	5.91	No Access
GS-11*	19.8	21.8	21.7	20	20.6	16.5	7.1	6.1	10.1	19.1	21.3	16.2
BH-2	20.6	22	22	21.2	19.2	20.4	21.6	19	18.9	20	21.3	21.3
BH-5	21.2	21.8	21.8	21	20.6	21.7	10.5	12.8	17.8	20.2	20.9	21.8
BH-6	21	18.9	18.8	19.6	19.1	19.2	18.9	18.2	19.1	18.9	19.2	20.4
BH-7	9.11	20.9	20.7	19.1	20.9	20.2	20.4	20	17.4	19.2	19	19.8
L-01*	21	22	21.9	21.1	20.8	20.8	11.6	15.9	19.1	19.9	17.2	18.9
L-02*	20.6	21.6	21.7	21	16.1	**	**	**	**	17	**	**
L-03*	20.4	21.9	21.6	20.8	21	13.9	0.4	0.8	1.8	17.2	17.5	2.6

** - well damaged

Landfill Gas Results 2014 Fassaroe W0053-03

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sample Station Number	**Barometric Pressure (mb)**	**Barometric Pressure (mb)**	**Barometric Pressure (mb)**	**Barometric Pressure (mb)**	**Barometric Pressure (mb)**	**Barometric Pressure (mb)**	**Barometric Pressure (mb)**	**Barometric Pressure (mb)**	**Barometric Pressure (mb)**	**Barometric Pressure (mb)**	**Barometric Pressure (mb)**	**Barometric Pressure (mb)**
GS-01	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006
GS-05	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006
GS-07*	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006
GS-08*	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006
GS-09*	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006
GS-10*	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006
GS-11*	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006
BH-2	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006
BH-5	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006
BH-6	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006
BH-7	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006
L-01*	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006
L-02*	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006
L-03*	1001	998	1001	999	1002	1009	1006	989	993	996	1005	1006

** - well damaged

DUST SUMMARY TABLES

Dust Results 2014 Fassaroe W0053-03

	DS-01	DS-02	DS-03	DS-04
Jan-14	18	3.3	45.7	12.4
Feb-14	21.3	12.2	36.4	7.9
Mar-14	30.3	201	27.9	94.5
Apr-14	47.4	95.7	63.7	11.7
May-14	12.1	31	30.2	17.8
Jun-14	24.3	49.3	57.9	*
Jul-14	19.4	42.9	32	81.7
Aug-14	154.6	89.3	*	117.1
Sep-14	109.1	35.4	139.6	44
Oct-14	15.4	19.7	18.2	13.6
Nov-14	18.1	46.5	40.4	27.2
Dec-14	8.9	33.1	58.1	9.4

* Sample jar damaged

NOISE SUMMARY TABLES

Noise Results 2014 Fassaroe W0053-03 Q1

Station N1

Time	$L_{Aeq\ 30\ min}$ dB	$L_{AF10\ 30\ min}$ dB	$L_{AF90\ 30\ min}$ dB	Specific L_{Aeq} dB*	Noise audible
0808-0838 18.06.14	61	63	47	61	Truck movements through gate and weighbridge areas continuously dominant until 0831, particularly trucks idling on weighbridge, masking all other noise. Intermittent movements after 0831 allowed other sources to become audible: continuous plant emissions onsite, including rubbing external conveyor (slightly audible), truck and plant movements on yards (audible at low level), N11 traffic (continuously clearly audible), roundabout traffic outside gate (clearly audible) and crows (significant).
1046-1116 18.06.14	59	62	48	59	Truck movements through gate and weighbridge dominant when present, although number of movements reduced since earlier. Queue of traffic idling at weighbridge dominant 1104-1115. Between movements, noise emissions from deeper in site slightly audible (rubbing/squeaking conveyor shut down), and N11 traffic clearly audible. Crows significant. Aircraft. Traffic movements through roundabout outside gate clearly audible.
1341-1411 18.06.14	56	57	44	55	As above. Squeaking conveyor resumed, slightly audible during lulls in truck movements.
2337-0007 18-19.06.14	43	40	35	38	Facade fans audible at low level continuously to 0005 when shut down. Loader reversing alarm also slightly audible. Site contribution estimated at 38 dB. N11 traffic audible at low level in background continuously, more significant after 0005. From 2357 to end interval, several vehicle and pedestrian movements through gate dominant when present. Sporadic traffic through roundabout outside entrance audible, in addition to high altitude aircraft.
0210-0240 19.06.14	36	39	28	0	No site emissions. N11 traffic continuously clearly audible to N. Lightly rustling vegetation.

*Specific L_{Aeq}: Level considered attributable to facility during interval, determined using real time assessment, field notes,

time history profiles, statistical analysis, frequency spectra, spectral statistics and near field correction if applicable.

Noise Results 2014 Fassaroe W0053-03 Q1

Station N2

Time	$L_{Aeq\ 30\ min}$ dB	$L_{AF10\ 30\ min}$ dB	$L_{AF90\ 30\ min}$ dB	Specific L_{Aeq} dB*	Noise audible
0810-0840 18.06.14	58	60	50	57	Truck movements through gate and weighbridge areas continuously dominant until 0831, particularly trucks idling on weighbridge, masking all other noise. Intermittent movements after 0831 allowed other sources to become audible: continuous plant emissions onsite, including rubbing external conveyor (audible at low level), truck and plant movements on yards (audible at low level), N11 traffic (continuously clearly audible) and crows (significant).
1124-1154 18.06.14	56	57	48	55	Truck movements through gate and weighbridge area dominant when present, often idling for several minutes. During lulls in truck movements, operations deeper within site audible at low level, and N11 traffic clearly audible. Crows significant.
1428-1458 18.06.14	57	59	49	56	As above. Crows absent. Several offsite gunshots within 200 m during interval.
0010-0040 19.06.14	41	41	34	39	No site emissions audible apart from occasional emissions from cleaning up operations in building incl. loader use, slightly audible when present to 0024. Single vehicle departures 0032 & 0038. N11 traffic continuously audible at low level, in addition to sporadic vehicle movements on roundabout and Thornhill Road. High altitude aircraft.
0239-0309 19.06.14	34	38	28	0	No site emissions. N11 traffic to NE continuously clearly audible. Lightly rustling trees nearby.

*Specific L_{Aeq}: Level considered attributable to facility during interval, determined using real time assessment, field notes,

time history profiles, statistical analysis, frequency spectra, spectral statistics and near field correction if applicable.

Noise Results 2014 Fassaroe W0053-03 Q1

Station N3

Time	$L_{Aeq\ 30\ min}$ dB	$L_{AF10\ 30\ min}$ dB	$L_{AF90\ 30\ min}$ dB	Specific L_{Aeq} dB*	Noise audible
0924-0954 18.06.14	51	51	44	50	Concrete cutter at onsite construction area audible at low level until 0929, screened by intervening bank. Excavator with bucket similarly audible from 0944. Sporadic truck movements through weighbridge area and around nearest point of yard, and car movements in carpark, audible at low level when present. Loader in building slightly audible on occasion. N11 continuously slightly audible in distance. Aircraft and birdsong. Crows continuously significant in valley.
1203-1233 18.06.14	50	52	45	49	As above, without construction plant activity. Site activity reduced during this period due to lunch break.
1508-1538 18.06.14	47	48	44	45	Occasional truck movements through weighbridge area and around nearest point of yard, and car movements in carpark, audible at low level when present. Excavator operating at construction area slightly audible for a time. N11 continuously slightly audible in distance. Aircraft and birdsong. Crows gradually resuming calling in valley, prior to several offsite gunshots within 100 m.
0047-0117 19.06.14	38	40	35	29	No site emissions audible apart from single vehicle movement in carpark 0051. N11 traffic continuously audible at low level. No other noise audible apart from sporadic aircraft, and faint dog barking in distance.
0317-0347 19.06.14	33	35	31	0	No site emissions. N11 traffic continuously audible at low level, although volume reduced since earlier. Lightly rustling vegetation. High altitude aircraft.

*Specific L_{Aeq}: Level considered attributable to facility during interval, determined using real time assessment, field notes,

time history profiles, statistical analysis, frequency spectra, spectral statistics and near field correction if applicable.

Noise Results 2014 Fassaroe W0053-03 Q1

Station N4

Time	$L_{Aeq\ 30\ min}$ dB	$L_{AF10\ 30\ min}$ dB	$L_{AF90\ 30\ min}$ dB	Specific L_{Aeq} dB*	Noise audible
0921-0951 18.06.14	47	49	41	<41	No site emissions audible apart from slightly audible concrete cutter to 0929. N11 traffic slightly audible, almost entirely masked by watercourse flow in valley. Birdsong and crows significant throughout valley.
1200-1230 18.06.14	47	49	42	<42	As above, minus concrete cutter.
1506-1536 18.06.14	44	43	40	<40	As above. Several offsite gunshots within 100 m during interval.
0049-0119 19.06.14	38	38	37	0	Watercourse flowing on valley floor continuously dominant, masking all but loudest N11 vehicles. No other noise audible apart from sporadic traffic in distance to NW, and high altitude aircraft.
0315-0345 19.06.14	38	38	37	0	As above.

*Specific L_{Aeq}: Level considered attributable to facility during interval, determined using real time assessment, field notes,

time history profiles, statistical analysis, frequency spectra, spectral statistics and near field correction if applicable.

Noise Results 2014 Fassaroe W0053-03 Q1

Station

NSL1

Time	$L_{Aeq\ 30\ min}$ dB	$L_{AF10\ 30\ min}$ dB	$L_{AF90\ 30\ min}$ dB	Specific L_{Aeq} dB*	Noise audible
0842-0912 18.06.14	48	49	43	47	Occasional truck movements through entrance significant when present. When absent, continuous plant emissions deeper within site slightly audible, not significant, and almost entirely masked by continuously clearly audible N11 traffic. Sporadic Thornton Road traffic audible. Crows significant.
1044-1114 18.06.14	48	50	44	48	As above, with queue of traffic idling at weighbridge dominant 1104-1115.
1338-1408 18.06.14	48	50	43	47	As above.
2349-0019 18-19.06.14	38	39	31	36	Facade fans audible at low level from start of interval to 2355, and slightly audible thereafter to 0005, contribution estimated at less than 38 dB. Loader reversing alarm slightly audible. Sporadic car movements through gate 2357-0010 clearly audible when present. N11 traffic continuously audible at low level in background, in addition to sporadic roundabout and Thornhill Road traffic. High altitude aircraft.
0206-0236 19.06.14	37	40	30	0	No site emissions audible. N11 traffic to NE continuously clearly audible. Rustling trees nearby.

*Specific L_{Aeq}: Level considered attributable to facility during interval, determined using real time assessment, field notes,

time history profiles, statistical analysis, frequency spectra, spectral statistics and near field correction if applicable.

Noise Results 2014 Fassaroe W0053-03 Q1

Station

NSL2

Time	$L_{Aeq\ 30\ min}$ dB	$L_{AF10\ 30\ min}$ dB	$L_{AF90\ 30\ min}$ dB	Specific L_{Aeq} dB*	Noise audible
1007-1037 18.06.14	58	54	48	<48	No site emissions audible, apart from truck movements through weighbridge area, faintly audible on occasion. Occasional Thornhill Road traffic dominant when present. N11 traffic continuously audible at low level in background. Birdsong and crows significant. Aircraft.
1239-1309 18.06.14	58	54	48	<48	As above.
1545-1615 18.06.14	60	55	47	<47	As above.
2300-2330 18.06.14	50	50	44	<44	No site emissions audible. N11 traffic to N & NE continuously clearly audible, and dominating noise environment. Passing cars on Thornhill Road x1. No other noise audible apart from sporadic aircraft
0131-0201 19.06.14	46	44	29	0	No site emissions audible. N11 traffic continuously clearly audible to N and NE, although partially masked by rustling trees nearby. Local car x1.

*Specific L_{Aeq}: Level considered attributable to facility during interval, determined using real time assessment, field notes,

time history profiles, statistical analysis, frequency spectra, spectral statistics and near field correction if applicable.

APPENDIX 2

Procedures Index

Integrated Procedures - IP		
IP-01	Document & Record Control Procedure	Rev 01, 28/04/14
IP-02	Health & Safety Risk Assessment Procedure	Rev 01, 28/04/14
IP-03	Environmental Aspects & Impacts Procedure	Rev 01, 28/04/14
IP-04	Legal & Regulatory Requirements Procedure	Rev 01, 28/04/14
IP-05	Objectives, Targets & Management Programmes Procedure	Rev 01, 28/04/14
IP-06	Competence, Training & Awareness Procedure	Rev 01, 28/04/14
IP-07	Communication & Consultation Procedure	Rev 01, 28/04/14
IP-08	Monitoring, Measurement & Improvement Procedure	Rev 01, 28/04/14
IP-09	Evaluation of Compliance Procedure	Rev 01, 28/04/14
IP-10	Non Conformances, Corrective/Preventive Actions Procedure	Rev 01, 28/04/14
IP-11	Internal Audit Procedure	Rev 01, 28/04/14
IP-12	Management Review Procedure	Rev 01, 28/04/14
IP-13	Control of Contractors/Visitors Procedure	Rev 01, 28/04/14
IP-14	Health & Safety & Environmental Monitoring	Rev 01, 28/04/14
IP-15	Emergency Preparedness & Response Procedure	Rev 01, 28/04/14
IP-16	Fire Prevention Procedure	Rev 01, 28/04/14
IP-17	Bin Washing Procedure	Rev 01, 28/04/14

Safety Procedures - SP		
SP-01	Permit to Work Procedure	Rev 01, 28/04/14
SP-02	Maintenance & Calibration Procedure	Rev 01, 28/04/14
SP-03	Mobile Plant Procedure	Rev 01, 28/04/14
SP-04	Fork Truck Procedure	Rev 01, 28/04/14
SP-05	Operation of Fixed Plant Procedure	Rev 01, 28/04/14
SP-06	Lock Out / Tag Out Procedure	Rev 01, 28/04/14
SP-07	Health & Safety Notification Procedure	Rev 01, 28/04/14
SP-08	MSW Shredder routine Maintenance & Clearing of Blockages Procedure (SCGT)	Rev 01, 28/04/14
SP-09	Weighbridge & Tipping Procedure (SCGT)	Rev 01, 28/04/14
SP-10	Cleaning of Washing Bay (Greenogue)	Rev 01, 28/04/14

Environmental Procedures - EP		
EP-01	Office Waste & Energy Management Procedure	Rev 01, 28/04/14
EP-02	Decommissioning and Aftercare Procedure	Rev 01, 28/04/14
EP-03	Environment Communications Procedure	Rev 01, 28/04/14
EP-04	Waste Permits & Licences Procedure	Rev 01, 28/04/14
EP-05	Waste Acceptance Procedure	Rev 01, 28/04/14
EP-06	Unacceptable Waste Procedure	Rev 01, 28/04/14
EP-07	Waste & Material Storage Procedure	Rev 01, 28/04/14
EP-08	Waste Processing Procedure	Rev 01, 28/04/14
EP-09	Site Infrastructure Procedure	Rev 01, 28/04/14
EP-10	Nuisance Management Procedure (Site Specific)	(Site Specific) Rev 01, 28/04/14
EP-11	Civic Amenity Site Procedure	Rev 01, 28/04/14

APPENDIX 3

European Pollutant Release and Transfer Register

Environmental Protection Agency

Guidance to completing the PRTR workbook

AER Returns Workbook

Version 1.1.18

REFERENCE YEAR	2014

1. FACILITY IDENTIFICATION

Parent Company Name	Starrus Eco Holdings Limited
Facility Name	Starrus Eco Holdings Limited (Fassaroe)
PRTR Identification Number	W0053
Licence Number	W0053-03

Classes of Activity

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

Address 1	Bray Depot
Address 2	La Vallee House
Address 3	Fassaroe
Address 4	Bray
	Wicklow
Country	Ireland
Coordinates of Location	-6.141357577 53.19976882
River Basin District	IEEA
NACE Code	3821
Main Economic Activity	Treatment and disposal of non-hazardous waste
AER Returns Contact Name	Malcolm Dowling
AER Returns Contact Email Address	malcolm.dowling@greenstar.ie
AER Returns Contact Position	Group Compliance Manager
AER Returns Contact Telephone Number	012947976
AER Returns Contact Mobile Phone Number	
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	10
User Feedback/Comments	Increased levels of sulphate detected in 2014. All levels were within the licence limits.
Web Address	

2. PRTR CLASS ACTIVITIES

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

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: Starrus Eco Holdings Limited (Fassaroe)

Please enter summary data on the quantities of methane flared and / or utilised	T (Total) kg/Year	M/C/E	Method Used: Method Code	Method Used: Designation or Description	Facility Total Capacity m3 per hour	
Total estimated methane generation (as per site 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 Section 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 conc

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

4.3 RELEASES TO WASTEWATER OR SEWER

Link to previous years emissions data

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
303	BOD	C	PER	Calculated based on annual flow rate. Analysis is ISO accredited.	495.06	495.06	0.0	0.0
306	COD	C	PER	Calculated based on annual flow rate. Analysis is ISO accredited.	607.97	607.97	0.0	0.0
343	Sulphate	C	PER	Calculated based on annual flow rate. Analysis is ISO accredited.	496.81	496.81	0.0	0.0
240	Suspended Solids	C	PER	Calculated based on annual flow rate. Analysis is ISO accredited.	397.22	397.22	0.0	0.0
308	Detergents (as MBAS)	C	PER	Calculated based on annual flow rate. Analysis is ISO accredited.	2.337	2.337	0.0	0.0
314	Fats, Oils and Greases	C	PER	Calculated based on annual flow rate. Analysis is ISO accredited.	109.0	109.0	0.0	0.0
324	**Mineral oils**	C	PER	Calculated based on annual flow rate. Analysis is ISO accredited.	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

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

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
Within the Country	13 02 08	Yes	1.6	other engine, gear and lubricating oils	R3	M	Weighed	Offsite in Ireland	Enva Ltd.,W0184-01	Clonminam Industrial Estate,Portlaoise,Co. Laois,.,Ireland	Enva Ltd.,W0184-01,Clonminam Industrial Estate,Portlaoise,Co. Laois,.,Ireland	Clonminam Industrial Estate,Portlaoise,Co. Laois,.,Ireland
To Other Countries	15 01 01	No	776.03	paper and cardboard packaging	R3	M	Weighed	Abroad	Cellmark USA,IRE/G180/11	200 Tamal Plaza,California,.,95245,United States		
To Other Countries	15 01 01	No	32.12	paper and cardboard packaging	R3	M	Weighed	Abroad	Rebox Recycking,CP D95/1	Unit 2B Kylemore Industrial Estate ,Killen Road ,Ballyfermot ,Dublin 10,ireland		
To Other Countries	15 01 01	No	3473.86	paper and cardboard packaging	R3	M	Weighed	Abroad	MLM (ACN Europe) Ltd ,TFS Broker IRE/G022/11	.,.,.,.,United Kingdom		
Within the Country	15 01 01	No	127.34	paper and cardboard packaging	R3	M	Weighed	Offsite in Ireland	Materia Environmental Ltd,IRE/AG161/11 The Kipper House Scilly Scilly Kinsale Co Cork	The Kipper House ,Scilly,Scilly,Kinsale,Co Cork		
To Other Countries	15 01 01	No	2025.76	paper and cardboard packaging	R3	M	Weighed	Abroad	Mark Lyndon Paper Enterprises,IRE/G021/12 12 The Triangle Nottingham Nottinghamshire NG2 1AE . United Kingdom	12 The Triangle ,Nottingham ,Nottinghamshire NG2 1AE,.,United Kingdom		
To Other Countries	15 01 01	No	282.22	paper and cardboard packaging	R3	M	Weighed	Abroad	Peute Papier Recycling BV,IRE/G006/08	Veeplaat 40,3313 LJ Dordrecht,.,.,Netherlands		
To Other Countries	15 01 02	No	1091.62	plastic packaging	R3	M	Weighed	Abroad	WRC Recycling,IRE/AG121/15	Floors St ,Johnstone ,Renfrewshire , PA5 8QS scotland,united kingdom		
To Other Countries	15 01 02	No	252.44	plastic packaging	R3	M	Weighed	Abroad	Cherry Pipes,IRE/G037/08	Unit 5 Nutts Corner Business Park,Dundrod Road,Crumlin,Co. Antrim BT29 4SR,United Kingdom		
Within the Country	15 01 02	No	11.46	plastic packaging	R3	M	Weighed	Offsite in Ireland	Polymer Recovery Ltd,WFP-LS-09-0007-01 Polymer Recovery Ltd East Canal road Portarlington Business Park Portarlington Co. Laois.	Polymer Recovery Ltd ,East Canal road ,Portarlington Business Park ,Portarlington ,Co. Laois.		
To Other Countries	15 01 02	No	78.46	plastic packaging	R3	M	Weighed	Abroad	J & A Young ,TFS Broker IRE/G058/11	.,.,.,.,United Kingdom		
Within the Country	15 01 02	No	228.58	plastic packaging	R3	M	Weighed	Offsite in Ireland	Leinster Environmentals,WP 2008/06	Clermont Business Park,Haggardstown,Dundalk, Co. Louth,Ireland		
Within the Country	15 01 02	No	15.78	plastic packaging	R3	M	Weighed	Offsite in Ireland	Mulleady's Ltd. ,W0169-01	Cloonaugh ,Drumlish ,Co. Longford ,Ireland,Ireland		
Within the Country	15 01 02	No	151.78	plastic packaging	R3	M	Weighed	Offsite in Ireland	Marwin Environmental Trading,IRE/G027/15	Rubicon Centre , C.I.T Campus Bishopstown ,cork,-,ireland		

Within the Country	15 01 02	No	3.66	plastic packaging	R3	M	Weighed	Offsite in Ireland	Materia Environmental Ltd,IRE/AG161/11 The Kipper House Scilly Scilly Kinsale Co Cork	The Kipper House ,Scilly,Scilly,Kinsale,Co Cork		
Within the Country	15 01 02	No	353.38	plastic packaging	R3	M	Weighed	Offsite in Ireland	Shabra Recycling,WFP-MN-08-0022-01	Killycard Industrial Estate,Castleblayney,Co. Monaghan,.,Ireland		
To Other Countries	15 01 02	No	249.23	plastic packaging	R3	M	Weighed	Abroad	Vanden Recycling,IRE/G274/16	Blaris Industrial Estate , Altona Road ,Lisburn ,County Antrim BT27 5QB ,united kingdom		
Within the Country	15 01 03	No	9.56	wooden packaging	R3	M	Weighed	Offsite in Ireland	CJ Sheeran,P0337-01	The Sawmills ,Shannon Street ,Mountrath ,Co. Laois ,ireland		
Within the Country	15 01 03	No	12.94	wooden packaging	R3	M	Weighed	Offsite in Ireland	Max Pallet Services,Not Required	Colemanstown,Rathcoole,Co. Dublin,.,Ireland		
Within the Country	15 01 04	No	312.527	metallic packaging	R4	M	Weighed	Offsite in Ireland	Green Dragon Recycling, WFP-CK-10-0060-02 CORBALLY NORTH GLANMIRE CO. CORK Cork Ireland	CORBALLY NORTH ,GLANMIRE ,CO. CORK,Cork,Ireland		
Within the Country	15 01 06	No	2739.99	mixed packaging	R13	M	Weighed	Offsite in Ireland	Panda,W039-02	Ballymount Cross,Tallaght,Dublin 24,- ,ireland		
To Other Countries	15 01 06	No	103.72	mixed packaging	R13	M	Weighed	Abroad	Regen Waste,WML 22/25 LN/13/32	7 Shepherds Drive ,Carnbane Industrial Estate ,Newry ,BT35 6JQ United Kingdom,United kingdom		
Within the Country	16 05 05	No	1.56	gases in pressure containers other than those mentioned in 16 05 04	R4	M	Weighed	Offsite in Ireland	Calor Teoranta,NA	Long Mile Road ,Dublin 12,-,- ,Ireland		
To Other Countries	17 02 03	No	13.64	plastic	R3	M	Weighed	Abroad	Cherry Pipes,IRE/G037/08	Unit 5 Nutts Corner Business Park,Dundrod Road,Crumlin,Co. Antrim BT29 4SR,United Kingdom		
Within the Country	17 04 02	No	13.01	aluminium	R4	M	Weighed	Offsite in Ireland	Green Dragon Recycling, WFP-CK-10-0060-02 CORBALLY NORTH GLANMIRE CO. CORK Cork Ireland	CORBALLY NORTH ,GLANMIRE ,CO. CORK,Cork,Ireland		
Within the Country	19 08 01	No	239.28	screenings	D5	M	Weighed	Offsite in Ireland	Bord na Mona. Drehid Landfill,W0201-03 Carbury Co Kildare - - Ireland	Carbury ,Co Kildare ,-,- ,Ireland	Long Mile Road,Dublin 12,-,- ,Ireland	
Within the Country	19 08 01	No	10.18	screenings	D5	M	Weighed	Offsite in Ireland	Greenstar Holdings Ltd.,W0165-02	Ballynagran,Coolbeg & Kilcandra,Co. Wicklow,.,Ireland	Clonminam Industrial Estate,Portlaoise,Co. Laois,.,Ireland	
Within the Country	19 12 07	No	917.58	wood other than that mentioned in 19 12 06	R3	M	Weighed	Offsite in Ireland	Bord na Mona. Drehid Landfill,W0201-03 Carbury Co Kildare - - Ireland	Carbury ,Co Kildare ,-,- ,Ireland		
Within the Country	19 12 07	No	3367.22	wood other than that mentioned in 19 12 06	R3	M	Weighed	Offsite in Ireland	Greenstar Holdings Ltd.,W0165-02	Ballynagran,Coolbeg & Kilcandra,Co. Wicklow,.,Ireland		
Within the Country	19 12 07	No	831.74	wood other than that mentioned in 19 12 06	R3	M	Weighed	Offsite in Ireland	Clonmel Waste Disposal Ltd ,WP-008-02 Greenstar Ltd Knockharley Landfill ,W0146-02	Lawlesstown , Clonmel , Co. Tipperary ,-,ireland		
Within the Country	**19 12 07**	**No**	117.46	wood other than that mentioned in 19 12 06	R3	M	Weighed	Offsite in Ireland	Kentstown Co. Meath - - Ireland	Kentstown ,Co. Meath ,-,- ,Ireland		
Within the Country	19 12 09	No	23223.3	minerals (for example sand, stones)	R3	M	Weighed	Offsite in Ireland	Greenstar Holdings Ltd.,W0165-02 Greenstar Ltd Knockharley Landfill ,W0146-02	Ballynagran,Coolbeg & Kilcandra,Co. Wicklow,.,Ireland		
Within the Country	19 12 09	No	520.66	minerals (for example sand, stones)	R3	M	Weighed	Offsite in Ireland	Kentstown Co. Meath - - Ireland	Kentstown ,Co. Meath ,-,- ,Ireland		

Within the Country	19 12 09	No	5470.21	minerals (for example sand, stones)	R3	M	Weighed	Offsite in Ireland	Marrakesh Landfill,W0048-01	Kilmurry South ,Bray ,Co Wicklow ,.,ireland			
Within the Country	19 12 12	No	51606.129	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	D5	M	Weighed	Offsite in Ireland	Greenstar Holdings Ltd.,W0165-02	Ballynagran,Coolbeg & Kilcandra,Co. Wicklow,.,Ireland			
Within the Country	19 12 12	No	28.66	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	R13	M	Weighed	Offsite in Ireland	Panda,W039-02	Ballymount Cross,Tallaght,Dublin 24,- ,ireland			
Within the Country	19 12 12	No	1160.88	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	R1	M	Weighed	Offsite in Ireland	Indaver IWMF ,W0167-02 Greenstar Ltd Knockharley Landfill ,W0146-02	Carlanstown , Duleek , Co Meath ,.,ireland			
Within the Country	19 12 12	No	919.4	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	R5	M	Weighed	Offsite in Ireland	Kentstown Co. Meath - - Ireland	Kentstown ,Co. Meath ,-,- ,Ireland			
Within the Country	19 12 12	No	887.5	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	R13	M	Weighed	Offsite in Ireland	Oxigen Environmental Limited,W-0208-1	Ballymount Industrial Estate ,Ballymount Road Lower ,Clondalkin ,Dublin 22,ireland			
Within the Country	19 12 12	No	1715.12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	R13	M	Weighed	Offsite in Ireland	Panda,W039-02	Ballymount Cross,Tallaght,Dublin 24,- ,ireland			
Within the Country	19 12 12	No	8377.02	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	R13	M	Weighed	Offsite in Ireland	Greenstar Limited,W0183-01	Millennium Business Park,Grange,Ballycoolin,Dubl in 11,Ireland			
Within the Country	19 12 12	No	76.6	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	R13	M	Weighed	Offsite in Ireland	Greenstar,W0116-02	Six Cross,Waterford,-,- ,ireland			
Within the Country	19 12 12	No	23.46	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	R13	M	Weighed	Offsite in Ireland	Greenstar (GES),W0177-03	Six Cross,Waterford,-,- ,ireland			
To Other Countries	20 01 01	No	8930.64	paper and cardboard	R3	M	Weighed	Abroad	MLM (ACN Europe) Ltd ,TFS Broker IRE/G022/11	.,.,.,.,United Kingdom			
To Other Countries	20 01 01	No	3121.31	paper and cardboard	R3	M	Weighed	Abroad	Mark Lyndon Paper Enterprises,IRE/G021/12 12 The Triangle Nottingham Nottinghamshire NG2 1AE . United Kingdom	12 The Triangle ,Nottingham ,Nottinghamshire NG2 1AE,.,United Kingdom			
To Other Countries	20 01 01	No	334.66	paper and cardboard	R3	M	Weighed	Abroad	Peute Papier Recycling BV,IRE/G006/08	Veeplaat 40,3313 LJ Dordrecht,.,.,Netherlands			
Within the Country	20 01 08	No	1083.56	biodegradable kitchen and canteen waste	R3	M	Weighed	Offsite in Ireland	Waddocks Composting,WP11/04 & WP 01/02	Killamaster,Co. Carlow,.,.,Ireland			
Within the Country	20 01 33	Yes	0.9	batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries	R4	M	Weighed	Offsite in Ireland	Multi Metals ,WFP-WW-09-0014-01	Blessington ,Co Wicklow ,.,.,ireland	Multi Metals ,WFP-WW-09-0014-01	Blessington ,Co Wicklow ,.,.,ireland	
To Other Countries	20 01 36	No	8.26	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	R4	M	Weighed	Abroad	NWP Recycling ,NWP Recycling Portadown Co Armagh . . United Kingdom	Portadown ,Co Armagh ,.,.,United Kingdom			
To Other Countries	20 01 39	No	115.2	plastics	R3	M	Weighed	Abroad	Envirogreen Polymers,WMEX 03/68 & WCP/MH/10/0008-01	227 Battleford Road ,Armagh ,Co. Armagh ,BT71 7NN,ireland			
Within the Country	20 01 39	No	2.98	plastics	R3	M	Weighed	Offsite in Ireland	North Chemicals,NA	Unit 6C Malahide Road Industrial Park ,Coolock , Dublin 17.,- ,Ireland			

Within the Country	20 01 39	No	4.62	plastics	R3	M	Weighed	Offsite in Ireland	Polymer Recovery Ltd,WFP-LS-09-0007-01 Polymer Recovery Ltd East Canal road Portarlington Business Park Portarlington Co. Laois.	Polymer Recovery Ltd ,East Canal road ,Portarlington Business Park ,Portarlington ,Co. Laois.	
Within the Country	20 01 40	No	448.9	metals	R4	M	Weighed	Offsite in Ireland	Davis Recycling Ltd,W0134-01	10 The Anchorage Business Park,Charlotte Quay,Dublin 4,.,Ireland	
Within the Country	20 01 40	No	136.1	metals	R4	M	Weighed	Offsite in Ireland	Clearcirlce,WCP-LK-08-589-01	ClearCircle Metals (Limerick) Ltd ,Ballysimon Road ,Limerick,.,ireland	
Within the Country	20 01 40	No	1126.35	metals	R4	M	Weighed	Offsite in Ireland	Multi Metals ,WFP-WW-09-0014-01	Blessington ,Co Wicklow ,.,.,ireland	
Within the Country	20 02 01	No	220.62	biodegradable waste	R3	M	Weighed	Offsite in Ireland	Bord na Mona Composting ,W0198-01	Kilberry Athy ,Co Kildare,-,-,ireland	
Within the Country	20 02 01	No	964.42	biodegradable waste	R3	M	Weighed	Offsite in Ireland	Enrich Environmental,WMP 2004/57	Kilcock Co. Kildare,.,.,.,Ireland	NWP Recycling ,NWP Recycling , Portadown ,Co Armagh ,.,.,United Kingdom Portadown ,Co Armagh ,.,.,United Kingdom
Within the Country	20 03 01	No	74.36	mixed municipal waste	D5	M	Weighed	Offsite in Ireland	Bord na Mona. Drehid Landfill,W0201-03 Carbury Co Kildare - - Ireland	Carbury ,Co Kildare ,-,-,Ireland	
Within the Country	20 03 01	No	8674.35	mixed municipal waste	D5	M	Weighed	Offsite in Ireland	Greenstar Holdings Ltd.,W0165-02	Ballynagran,Coolbeg & Kilcandra,Co. Wicklow,.,Ireland	
Within the Country	20 03 01	No	399.86	mixed municipal waste	R1	M	Weighed	Offsite in Ireland	Indaver IWMF ,W0167-02	Carlanstown , Duleek , Co Meath ,.,ireland	
Within the Country	20 03 01	No	51.66	mixed municipal waste	R13	M	Weighed	Offsite in Ireland	Oxigen Environmental Limited,W-0208-1	Ballymount Industrial Estate ,Ballymount Road Lower ,Clondalkin ,Dublin 22,ireland	
Within the Country	20 03 01	No	5211.8	mixed municipal waste	R13	M	Weighed	Offsite in Ireland	Panda,W039-02	Ballymount Cross,Tallaght,Dublin 24,-,ireland	
Within the Country	20 03 01	No	35.12	mixed municipal waste	R13	M	Weighed	Offsite in Ireland	Greenstar Limited,W0183-01	Millennium Business Park,Grange,Ballycoolin,Dublin 11,Ireland	
Within the Country	20 03 01	No	98.7	mixed municipal waste	R13	M	Weighed	Offsite in Ireland	Greenstar,W0116-02	Six Cross,Waterford,-,-,ireland	
Within the Country	20 03 03	No	153.78	street-cleaning residues	D5	M	Weighed	Offsite in Ireland	Bord na Mona. Drehid Landfill,W0201-03 Carbury Co Kildare - - Ireland	Carbury ,Co Kildare ,-,-,Ireland	
Within the Country	20 03 03	No	2566.87	street-cleaning residues	D5	M	Weighed	Offsite in Ireland	Greenstar Holdings Ltd.,W0165-02	Ballynagran,Coolbeg & Kilcandra,Co. Wicklow,.,Ireland	
Within the Country	20 03 07	No	3555.62	bulky waste	D5	M	Weighed	Offsite in Ireland	Bord na Mona. Drehid Landfill,W0201-03 Carbury Co Kildare - - Ireland	Carbury ,Co Kildare ,-,-,Ireland	
Within the Country	20 03 07	No	592.76	bulky waste	D5	M	Weighed	Offsite in Ireland	Greenstar Holdings Ltd.,W0165-02	Ballynagran,Coolbeg & Kilcandra,Co. Wicklow,.,Ireland	
Within the Country	19 12 07	No	58.46	wood other than that mentioned in 19 12 06	R3	M	Weighed	Offsite in Ireland	Ormonde Organics,W0237-01	Unit 643 Greenogue Industrial Estate,Rathcoole,Co. Dublin,.,Ireland	
Within the Country	19 12 07	No	101.9	wood other than that mentioned in 19 12 06	R3	M	Weighed	Offsite in Ireland	Waddocks Composting,WP11/04 & WP 01/02	Killamaster,Co. Carlow,.,.,Ireland	