

Ms. Aisling Ryan,
Office of Environmental Enforcement,
West/North West Region,
Environmental Protection Agency,
John Moore Road,
Castlebar,
Co. Mayo

31st March 2010

RE: AER 2009 – Greenstar Ltd. – Sligo Depot
Waste Licence Register No.W0058-01

Dear Ms. Ryan,

Please find enclosed an original and 2 no. copies of the 2009 Annual Environmental Report (AER) for the above referenced facility. The AER file has been uploaded to the EPA website and is a true copy of the original Annual Environmental Report. The AER/PRTR emissions data reporting workbook has also been uploaded to the EPA website.

Yours sincerely,



Michael Watson

0904803/MW/MG

Encl

c.c.: Ms. Suzanne Byrne, Greenstar Ltd.,
Mr. David Stapleton, Greenstar Ltd. (Sligo)



ANNUAL ENVIRONMENTAL REPORT
FOR GREENSTAR LTD.
DEEP WATER QUAY SLIGO
LICENCE NO. W0058-01
JANUARY 2009 – DECEMBER 2009

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31st March 2010

Project		Annual Environmental Report 2009		
Client		Greenstar Ltd. W0058-01		
Report No	Date	Status	Prepared By	Reviewed By
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TABLE OF CONTENTS

	<u>PAGE</u>
1. INTRODUCTION.....	1
2. SITE DESCRIPTION.....	2
2.1 SITE LOCATION AND LAYOUT	2
2.2 WASTE MANAGEMENT ACTIVITIES	2
2.2.1 <i>Waste Types</i>	3
2.2.2 <i>Individual Waste Streams</i>	4
3. EMISSION MONITORING	5
3.1 SURFACE WATER MONITORING	5
3.2 GROUNDWATER MONITORING.....	7
3.3 FOUL WATER MONITORING	8
3.4 NOISE SURVEY	9
3.5 DUST MONITORING	10
3.6 LANDFILL GAS MONITORING	11
4. SITE DEVELOPMENT WORKS	12
4.1 ENGINEERING WORKS	12
4.2 SUMMARY OF RESOURCE & ENERGY CONSUMPTION	12
5. WASTE RECEIVED AND CONSIGNED FROM THE FACILITY	14
6. ENVIRONMENTAL INCIDENTS AND COMPLAINTS	18
6.1 INCIDENTS	18
6.2 REGISTER OF COMPLAINTS.....	18
7. ENVIRONMENTAL DEVELOPMENT	19
7.1 ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT	19
7.1.1 <i>Site Management Structure</i>	19
7.1.2 <i>Staff Training</i>	20
7.2 ENVIRONMENTAL MANAGEMENT PROGRAMME PROPOSAL	20
7.2.1 <i>Schedule of Objectives 2009</i>	20
7.2.2 <i>Schedule of Objectives 2010</i>	20
7.3 COMMUNICATIONS PROGRAMME	23
7.4 REPORT FINANCIAL PROVISION.....	23
8. OTHER REPORTS.....	24
8.1 EUROPEAN POLLUTANT RELEASE AND TRANSFER REGISTER REGULATION	24
APPENDIX 1 - Annual Noise Survey Report	
APPENDIX 2 - Procedures List	
APPENDIX 3 - PRTR Returns	

1. INTRODUCTION

This is the 2009 Annual Environmental Report (AER) for the Greenstar Ltd. (Greenstar), Materials Recovery & Transfer facility (MRF) at Deep Water Quay, Sligo. The AER covers the period from the 1st January 2009 to the 31st December 2009. The content is based on Schedule B of the Waste Licence (Reg. No. W0058-01) and the report format follows guidelines set in the “Guidance Note for Annual Environmental Report” issued by the Environmental Protection Agency (Agency)¹.

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

2. SITE DESCRIPTION

2.1 Site Location and Layout

The facility is located at Deepwater Berths Road, approximately 1.5 km northwest of Sligo town centre and 1 km from a relief road linking the N4 to the N15.

The licensed area, which encompasses approximately 11,000 m² and is accessed off the Deepwater Berths Road, is occupied by one MRF building, site offices, open yard areas and a civic amenity area.

The main building encompasses approximately 2,322 m² and is divided into three bays. The site offices, which are located beside the main entrance, comprise a two storey building encompassing approximately 84 m². The north western yard is paved with concrete and provides access to the waste processing building. The south-eastern yard is also paved and comprises the civic amenity area and an open paved yard area.

2.2 Waste Management Activities

The facility is licensed to accept 100,000 tonnes per annum of household waste, commercial waste, industrial non-hazardous waste and construction and demolition waste for processing and/or transfer for disposal or recovery.

All waste processing takes place inside the MRF building, as specified in Condition 5.1 of the Waste Licence. The plant and equipment in use at the facility is shown on Table 2.1.

Table 2.1 Plant List – 2009

No.	Plant	Model	Operational Capacity	Standby Capacity
1	Baler	Boa	7t/hr	7t/wk
1	Paper Shredder	Alleghney	500kg/hr	500kg/hr
5	Trucks	Skip Trucks *3	60hr/wk	-
		Refuse Trucks *4	60hr/wk	-
1	Hook Lifter	Scania	65hr/wk	-
1	Loading Shovel	Caterpillar 938G	70t/hr	-
1	Fork Lift	Yale x2	65hr/wk	-
	Trommel	Powerscreen	60t/hr	-
1	Grab	Fuchs MHL340	25t/hr	-
1	Weighbridge	Avery Weightronic	46hr/wk	-

2.2.1 Waste Types

The facility is licensed to accept the following waste types, as specified in Schedule G of the Licence: -

- Household (41,400 tonnes);
- Commercial (4,600 tonnes);
- Industrial Non-hazardous (45,000 tonnes);
- Construction & Demolition (C&D) (9,000 tonnes);

No hazardous wastes or liquid waste are accepted.

The key processes carried out are: -

- Segregation of recyclable material (paper, cardboard, plastic, aluminium cans);
- Baling of segregated materials;
- Sorting and segregation of C&D waste.

Household Waste

Residual or black bin household waste arrives in refuse collection vehicles and is transferred from the vehicles into large bulk transporters for consignment to an appropriately licensed landfill. Source segregated household dry recyclables are baled and stored prior to transfer to off-site recycling facilities.

Commercial and Industrial Waste

Both mixed and segregated commercial waste is collected from commercial outlets. Commercial waste rich in recyclables (paper, cardboard and plastic) is delivered to the facility both by permitted third party hauliers and by Greenstar vehicles. Plastic, card and paper are baled and stored prior to transfer to a suitable off-site recycling outlet. The remaining non-recyclable material is bulked and sent to appropriately licensed landfills.

C&D Waste

Waste loads include mixed construction and demolition wastes and soil and stone. The material arrives in skips of varying sizes. The waste loads are inspected and then processed. The majority of the incoming C&D material (>95%) is recovered.

2.2.2 *Individual Waste Streams*

Packaging Waste

Cardboard, paper and plastic packaging wastes collected from commercial and industrial premises, such as supermarkets, and the kerbside separately collected municipal packaging is accepted at the facility. Packaging waste is also accepted at the civic amenity area located in the south-eastern yard. Recyclable cardboard, paper and plastic are recovered, baled and stored pending transfer to a suitable recovery outlet.

Municipal Waste - Paper and Cardboard

Paper and cardboard generally arrive in either pre-segregated or in mixed waste loads. Paper and cardboard are also accepted at the civic amenity area. Unspoilt material is baled and stored prior to removal off-site to an appropriate facility.

Plastics

Plastics removed from mixed waste loads, pre-segregated commercial and industrial plastic, and from the civic amenity area are baled and transferred to a suitable recovery facility.

Glass

Glass from the bottle banks located in the civic amenity area and glass segregated from the incoming commercial and construction and demolition waste is collected and stored pending transfer to an appropriate glass recovery facility.

Metals

Aluminium cans segregated from the incoming commercial waste loads and collected in the can banks located on-site are baled and sent for recycling. Scrap metal recovered from the commercial and construction and demolition waste is transferred to a suitable recovery facility.

Wood

Wood segregated from incoming municipal and construction and demolition waste is transferred off-site for recovery or recycling.

3. EMISSION MONITORING

Greenstar implements a comprehensive environmental monitoring programme to assess the significance of emissions from site activities. The programme includes surface water, foul water, groundwater, noise, landfill gas and dust monitoring. The monitoring locations are shown on Figure 3.1.

The fully certified monitoring results are submitted to the Agency at quarterly intervals. An overview of the results of the monitoring is presented in this Section.

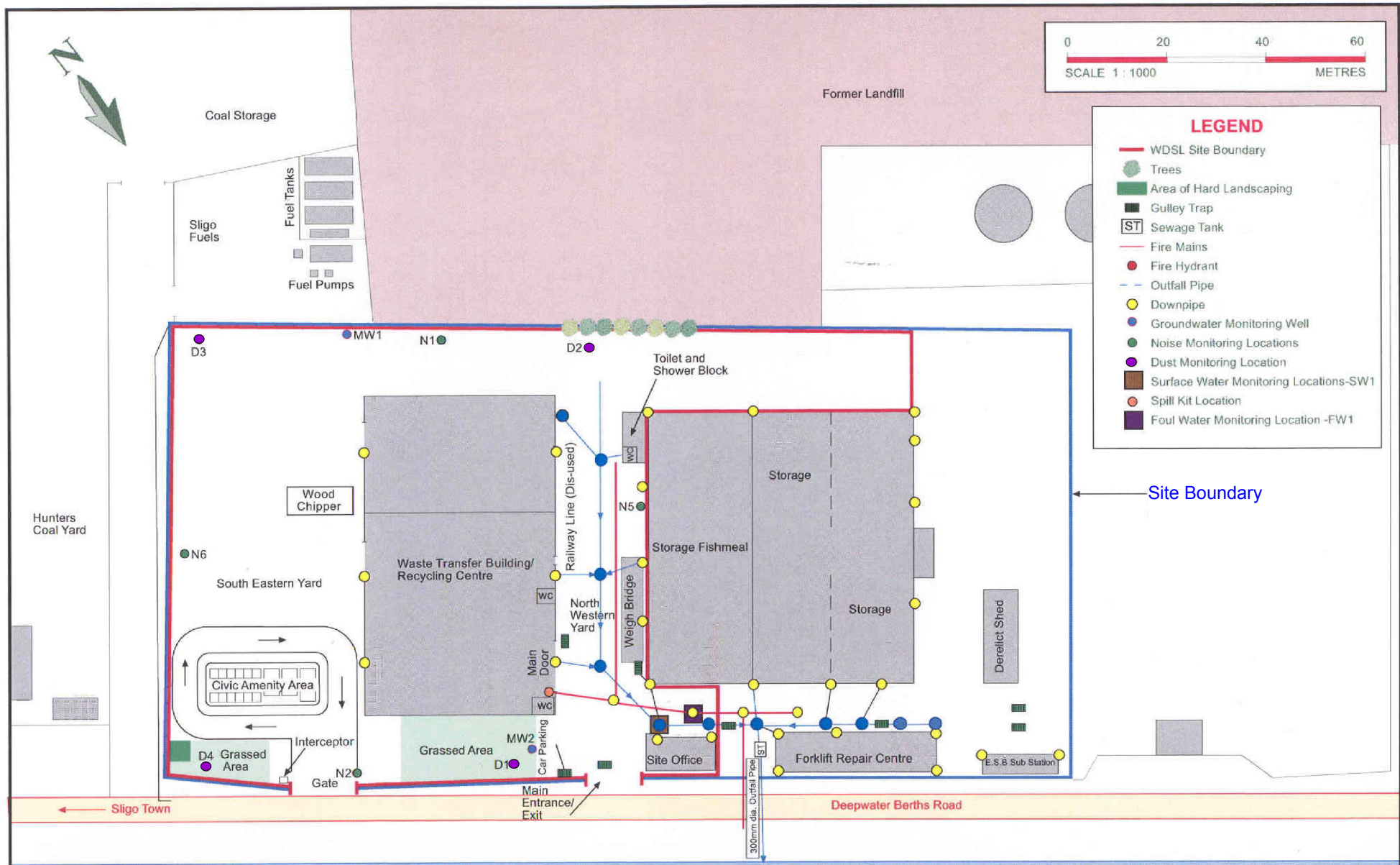
3.1 Surface Water Monitoring

The surface water drainage system, serving roofed and open yard areas, discharges via a silt trap and petrol/oil interceptor to the Garavogue River. The interceptor and drains are cleaned on average every six months.

Surface water monitoring is carried out at quarterly intervals at the final discharge point (SE-2). The range of analysis is as specified in Schedule E of the Waste Licence and includes pH, electrical conductivity, Chemical Oxygen Demand (COD), Biological Oxygen Demand (BOD), ammoniacal nitrogen, chloride, surfactants, total suspended solids (TSS), mineral oils and oils, fats and greases, total and faecal coliforms.

The sampling and analysis were carried out in accordance with OCM sampling protocols and standard quality assurance procedures. Samples were collected on the 5th March, 17th June, 6th November and 19th November 2009. The results are shown on Table 3.1.

Emission Limit Values (ELV) for SE-2 are set in Schedule F3 and Condition 7.4 of the Licence. In general the surface water discharge from the facility is of good quality. The ELVs were not exceeded during the monitoring period. Total and faecal coliforms were also detected, but the sources are considered to be natural (birds and small animals).



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CLIENT

Greenstar Ltd

Details

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FIGURE NUMBER

3.1

TITLE

Monitoring Locations

Scale

Not To Scale

Revision

A

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Table 3.1 Surface Water Results for 2009

Parameter	Units	SE-2 Q1	SE-2 Q2	SE-2 Q3	SE-2 Q4	Emission Limit
pH	pH units	7.61	8.11	7.9	8.0	6 – 9
Conductivity	mS/cm	0.384	0.611	0.055	0.485	N/A
Chloride	mg/l	22	17.0	5.9	5.9	N/A
Ammoniacal Nitrogen	mg/l	8	0.11	0.0381	0.108	N/A
COD	mg/l	17	15	40	36	N/A
BOD	mg/l	1	2	7	6	20
Total Suspended Solids	mg/l	<10	22	17	9	30
Surfactants	mg/l	<0.2	<0.2	<0.02	0.024	N/A
Mineral Oils	mg/l	0.019	<0.01	0.196	0.823	N/A
Oils, Fats & Greases	mg/l	0.064	1.276	<2	<2	10
Faecal Coliforms	cfu/100ml	N/A	N/A	1,414	N/A	N/A
Total Coliforms	cfu/100ml	N/A	N/A	2,420	N/A	N/A

N/A - not applicable

3.2 Groundwater Monitoring

There are no direct or indirect emissions to ground from the facility. Groundwater monitoring is carried out annually at two locations (MW1 and MW2) shown on Figure 3.1. MW1 is located on the southern boundary of the site in an open paved yard area, and MW2 is located on the northern boundary near the main entrance to the site. MW1 is upgradient of site activities, while MW2 is downgradient.

The laboratory analysis included the annual range of parameters specified in Schedule E5 of the licence. The sampling and analysis was carried out in accordance with recognised quality assurance and control procedures. The parameters were ammoniacal nitrogen, BOD, chloride, mineral oils, pH, faecal coliforms and total coliforms.

There are no ELVs or trigger limits set in the licence. The results are compared to the Interim Guideline Values (IGV) on groundwater quality published by the Agency. The summary results for 2009 are shown on Table 3.2.

Elevated levels of chloride, ammoniacal nitrogen and mineral oils were detected in the upgradient well MW1 and also the downgradient well MW2. Faecal coliforms were not detected in either MW1 or MW2. Total coliforms were detected in both monitoring wells.

The elevated ammoniacal nitrogen and chloride may be attributable to a former landfill (the closed Finisklin landfill is located immediately west of and hydrologically up gradient of the facility) and the effects of salt water intrusions beneath the site from the estuary. The elevated levels of mineral oils recorded at MW1 in particular, but also to a lesser extent at MW2, are attributed to a neighbouring kerosene and diesel Distribution Centre approximately

5 m from the site's southern boundary. There are no on-site potential sources of hydrocarbon contamination in the vicinity of either well.

Oil contamination was initially detected in MW1 in 2006 and it has persisted. Greenstar informed the distribution centre, the Agency and Sligo County Council of the discovery of the oil contamination. The most recent result (1070 mg/l) is higher than the levels measured in August 2006 (26.89 mg/l), August 2007 (22.51 mg/l) and September 2008 (581 mg/l). 2009 was the first time that Mineral Oil was detected in the down gradient well MW2.

Table 3.2 Groundwater Monitoring Results September 2009

Parameter	Units	MW1	MW2	IGV
pH	pH units	7.1	6.9	6-9
Chloride	mg/l	31.9	67.9	30
Ammoniacal Nitrogen	mg/l	1.17	3.20	0.15
BOD	mg/l	163	5	-
Mineral Oils	mg/l	1070	0.85	0.01
Faecal Coliforms	cfu/100ml	<1	<1	0
Total Coliforms	cfu/100ml	345	248	0

3.3 Foul Water Monitoring

Foul water monitoring is carried out quarterly. The foul water drainage system discharges via a holding tank to the Garavogue River. The monitoring is carried out at one location (SE-1), the final discharge point from the facility. The sampling location is shown on Figure 3.1. The monitoring results are presented on Table 3.3.

The range of analysis was as specified in Schedule F of the Waste Licence and includes pH, BOD, COD, ammoniacal nitrogen, chloride, detergents, total suspended solids, mineral oils, oils, fats and greases, total coliforms and faecal coliforms. The sampling and analysis was carried out in accordance with recognised quality assurance and control procedures.

Emission Limit Values (ELV) for SE-1 are set in Schedule F of the Licence. In Q1 the ELVs for ammoniacal nitrogen and BOD were exceeded, in Q2 the ELV for BOD was exceeded and in Q3 the ELVs for BOD and TSS were exceeded. The Q4 results were below the ELVs. The foul water discharge includes sanitary wastewater and it is considered that the results reflect the sanitary discharge. Given the low flow rate of the discharge and the assimilative capacity of the Garavogue it is considered that the elevated results had an imperceptible impact on the water quality in the river

The Sligo Main Drainage scheme has recently been completed and a new wastewater treatment plant is now operational to the north west of the facility at the end of Deep Water Berths Road. An application to connect the facilities foul water discharges to the WWTP was made in Q4 2009 and it is expected that the connection will be made in Q2 2010 subject to the

approval of the Council. Revised ELVs to reflect the new receiving environment (WWTP rather than Garravogue) have also been submitted to the Agency for their approval. It is expected that the ELVs set in the current licence will be increased significantly in line with levels normally set for discharges to WWTP.

Table 3.3 Foul Water Monitoring Results for 2009

Parameter	Units	SE-1 Q1	SE-1 Q2	SE-1 Q3	SE-1 Q4	Emission Limit
pH	pH units	8.96	7.80	7.2	7.6	6 – 9
Conductivity	mS/cm	0.886	0.741	0.665	0.610	N/A
Chloride	mg/l	58.3	23.3	19.9	25.9	N/A
Ammoniacal Nitrogen	mg/l	110	3.66	2.72	0.568	5
COD	mg/l	130	86	129	14	N/A
BOD	mg/l	49	39	83	7	20
Total Suspended Solids	mg/l	<10	30	48	20	30
Surfactants	mg/l	1.7	4.59	0.204	0.045	N/A
Mineral Oils	mg/l	<0.01	0.07	0.74	0.051	N/A
Oils, Fats & Greases	mg/l	0.283	1.398	<2	<2	10
Faecal Coliforms	cfu/100ml	N/A	N/A	3.0 x 10 ⁴	N/A	N/A
Total Coliforms	cfu/100ml	N/A	N/A	2.4 x 10 ⁴	N/A	N/A

N/A – Not Applicable

3.4 Noise Survey

All waste processing is carried out internally which provides significant attenuation for noise emissions from waste processing. The annual noise survey was carried out on 2nd July 2009. Monitoring was carried out at the four noise monitoring locations, N-1, N-2, N-5 and N-6 specified in the licence shown on Figure 3.1. The full report is included in Appendix 1 and the results are summarised on Table 3.4. The survey was conducted between the hours of 14.39 and 16.37 when the site was fully operational. The survey concluded that the facility was in compliance with its licence requirements.

The nearest sensitive receptors to the facility are private residences located approximately 200 m to the east of the facility across the Garavogue River at Cartron, Sligo. There are also some individual residences located close to the Finiskiln Industrial Estate approximately 200 m south of the facility. An inspection undertaken by the acoustic consultant in the vicinity of the nearest sensitive locations prior to the onsite noise survey indicated that noise emissions from the study site were not audible or discernible at these locations.

Table 3.4 Noise Monitoring Results 2009

Station	Time	L _{Aeq} 30 min dB	L _{A10} 30 min dB	L _{A90} 30 min dB	Noise audible
N1	1535-1605	63	59	46	FLT occasionally passing SLM dominant. Trucks moving around yard areas audible. Plant and trucks operating within main building audible continuously at low level. Crows significant. Extraneous: road traffic to NE, and sporadic truck movements at adjacent oil depot.
N2	1429-1500	67	68	55	Noise dominated by FLT operating in vicinity of civic amenity area. Also noise from users of civic amenity area and sporadic management operations. Vehicle movement on onsite yards audible. Offsite traffic audible on adjacent industrial estate roads.
N5	1607-1637	63	64	44	Plant and trucks audible within main building. FLT and trucks moving around adjacent yard dominant. However, site quietening gradually, and few emissions during last 10 min. Crows significant. Traffic passing on industrial estate road audible.
N6*	1502-1532	54*	56*	45*	FLT moving around yard areas significant. Also occasional truck movements. Plant and trucks operating within main building audible at low level. Users at civic amenity area audible. Conveyor belt operating offsite at nearby premises audible at low level continuously. Intermittent traffic on industrial estate roads, particularly road outside N6.

FLT: Forklift truck

SLM: Sound level meter

*At station N6 the sound level meter was positioned 2 m from large skips surrounding the monitoring station. N6 noise data presented in the table have been corrected in accordance with *International Standards Organisation ISO1996 Acoustics: Description and measurement of environmental noise Part1 (2003) and Part 2 (2007)*. The correction applied is -3 dB.

3.5 Dust Monitoring

There are significant off-site sources of dust in the vicinity of the facility which is located in an industrial area of Sligo Port. In dry weather conditions Greenstar dampen down access roads and the paved yards. Dust monitoring was carried out three times during the year at four on-site locations (D1, D2, D3 and D4) as shown on Figure 3.1. The licence requires that two of these monitoring events be carried out between May and September. Dust monitoring was carried out in June, August and December 2009. The results of the dust monitoring are summarised in Table 3.5.

The dust deposition limit (350 mg/m²/day) was not exceeded at any monitoring location during the monitoring period.

Table 3.5 Dust Monitoring Results 2009

	June 09 mg/m ² /day	August-09 mg/m ² /day	December -09 mg/m ² /day	Deposition Limit mg/m ² /day
D1	316	277	168	350
D2	279	155	148	350
D3	282	153	192	350
D4	307	303	196	350

3.6 Landfill Gas Monitoring

The annual gas monitoring programme included measurements of methane, carbon dioxide, oxygen and atmospheric pressure from the two groundwater monitoring wells (MW1 & MW2) and the facility office on the 17th September 2009. There are no emission limits set in the waste licence. Carbon dioxide and methane were not detected at any of the monitoring locations. There is no evidence that landfill gas is present in the soils beneath the facility.

OCM carried out the gas measurements using a Gas Data LSMx gas analyser. The meter was calibrated before use. The detection limit is 0.1% for methane, carbon dioxide and oxygen. The results are shown on Table 3.6.

Table 3.6 Landfill Gas Monitoring Results 2009

LANDFILL GAS MONITORING FORM				Baseline		Ambient	x
Site Name: Greenstar Ltd. – Sligo Depot				Site Address: Greenstar, Deep Water Quay Sligo.			
Operator: GREENSTAR				National Grid Reference:			
Site Status: Operational				Date: 17 th September 2009			
Instrument used: Gas Data LMSx		Normal Range: 0 – 100%		Analytical			
Monitoring Personnel: OCM				Weather: Dry, Mild			
Results							
Sample Station Number	Borehole/spike/other	CH ₄ (% v/v)	CO ₂ (% v/v)	O ₂ (% v/v)	Barometric Pressure (mb)	Comment	
MW1	Borehole	0.0	0.0	20.4	1012		
MW2	Borehole	0.0	0.0	20.0	1012		
OFFICE	-	0.0	0.0	20.2	1012		

4. SITE DEVELOPMENT WORKS

4.1 Engineering Works

Table 4.1 lists the development works which were carried out on-site in 2009. The proposed development works for 2010 are listed in Table 4.2.

Table 4.1 Update on Proposed Development Works for 2009

Description of Works	Scheduled Date	Status
Complete fencing at back of yard	Before 30 th April 2009	Completed
Further Improve Traffic Management Programme	Evaluate recommendations of Trafficwise report when available	Completed. Improvements made to the civic amenity area
Upgrade Civic Site Further – Reline ground markings	Q2-Q3 2009	Completed
Connect surface and waste water discharges to Municipal WWTP	Once commissioned by Sligo Council (expected in Q2 2009)	Application to Sligo Council for the connection made in Q4 2009

Table 4.2 Proposed Development Works for 2010

Description of Works	Scheduled Date
Connect waste water discharges to Municipal WWTP	Application to Sligo Council for the connection made in Q4 2009. Expected connection in Q2 2010

The facility has sufficient plant capacity to handle the volumes of waste accepted at the facility. It is not expected that the existing methods, processes, waste types accepted and operating procedures will not be altered significantly in 2010.

4.2 Summary of Resource & Energy Consumption

Table 4.3 presents an estimate of the resources used on-site during the reporting period from January to December 2009.

Table 4.3 Estimates of Resources Used On-Site

Resources	Quantities
Vehicle Diesel	178,624 litres
Diesel (green)	33,184 litres
Electricity	119,4741 kwh
Detergent	135 litres
Hydraulic & Engine Oil	3,250 litres
Estimated volume of water going to sewer	29,837 litres

5. WASTE RECEIVED AND CONSIGNED FROM THE FACILITY

Table 5.1 shows the quantities for the period January 2009 to December 2009. The total quantity of waste received was 24,136.72 tonnes and the total waste consigned was 25,623.68 tonnes. For comparative purposes the amounts of waste received and consigned from 2003 to 2008 are presented in Tables 5.2 and 5.3. All the wastes consigned from the site went to recovery and disposal facilities agreed with the EPA.

The recording system shows 1,486.96 more tonnes consigned than accepted during the reporting period. This is understood to be due mainly to operational procedures at the weighbridge associated with the way waste received at the civic amenity facility is recorded. Not all wastes received at the civic facility are weighed in prior to processing however it is all weighed out and the offsite destinations recorded.

The recycling rate for the facility is estimated at 34 %.

Table 5.1 Waste Received & Consigned 2009

Material	Tonnes per Annum		
	Received	Recovered	Landfilled
Construction and Demolition	803		
MSW	11,724		11,724
Commercial and Industrial	6,890	2,078	5,139
Construction and Demolition			
		981	
Non-Recyclables			
Mixed Recyclables	1,189	1,279	
Plastic	315	265	
Paper and Cardboard	1,327	1,587	
Metal	178	355	
Timber	417	260	
Batteries	0	6	
Rubber	0		
Glass	106	122	
Fines	0	492	
Sludge	802	823	
WEEE	235	245	
Textile	19	24	
Tetra Pak	17	0	
Green Biodegradable Waste	35	35	
Mixed Powders	208	208	
IBC	1	0	
Supersacks	0	0	
Total Tonnage	24,267	8,760	16,864
Recovery Rate	34.19%		

Table 5.2 Waste Received & Consigned 2008

Material	Tonnes per Annum		
	Received	Recovered	Landfilled
Construction and Demolition	389		
MSW	15,371		15,371
Commercial and Industrial	16,544		16,773
Construction and Demolition			
Construction and Demolition		1,026	
Non-Recyclables			
Mixed Recyclables	1,481	1,710	
Plastic	404	212	
Paper and Cardboard	1,328	1,269	
Metal	228	401	
Timber	318	486	
Batteries	2	6	
Rubber	4		4
Glass	126	106	
Fines		833	
Sludge	690	693	
WEEE	6	201	
Textile	1	27	
Tetra Pak	17	17	
Polystyrene	1		1
Mixed Powders	73	84	
IBC	3	3	
Supersacks	8	8	
Total Tonnage	36,993	7,082	32,148
Recovery Rate	19%		

Table 5.3 Total Tonnages Received and Consigned in 2003-2007

Year	Tonnes per Annum	Tonnes Recovered	Tonnes Landfilled
2003/2004	14,484	2,199	12,285
2004	18,548	6,351	12,197
2005	21,500	6,750	12,694
2006	23,196	8,393	15,634
2007	32,271	9,224	24,672

6. ENVIRONMENTAL INCIDENTS AND COMPLAINTS

6.1 Incidents

There were three separate incidents involving a total of five exceedances of the foul water ELVs as described in Section 3. There were no other incidents at the facility during the reporting period. The Agency were notified of each ELV exceedance following the issue of results and the Regional Fisheries authority and local authority were also notified of the foul water exceedances as required by the licence.

6.2 Register of Complaints

Greenstar maintains a register of complaints received in accordance with Condition 3.12 of the waste licence. No complaints were received in the reporting period.

7. ENVIRONMENTAL DEVELOPMENT

7.1 Environmental Management Programme Report

Greenstar has developed an Environmental Management System (EMS) for the facility and it is intended to apply for ISO 14001 accreditation in 2010. As part of this EMS Greenstar has developed a list of environmental, management, operating and maintenance procedures, details of which are outlined in Appendix 2. The proposed schedule of objectives and targets for 2010 are outlined below on Table 7.2.

7.1.1 Site Management Structure

Name: David Stapleton

Responsibility: General Manager; overall management of the site

Experience: 17 years experience

Name: Barry Gallagher

Responsibility: Operations Manager; overall management of the site, responsible for management of all fleet activities

Experience: 19 years experience. N.C.B.S

Name: Anthony Lynch

Responsibility: Yard Foreman, management of baler, pickers, forklift driver and yard cleaner

Experience: 8 years

Name: Louise Lynch

Responsibility: Administration Manager, office administration

Experience: 7 years

7.1.2 Staff Training

The General Manager has completed the FÀS management course in 2006. The Administration Manager completed the FÀS management course in 2007. Staff training in accordance with the 2008 Schedule of Objectives and Targets was carried out in Q4 2009.

7.2 Environmental Management Programme Proposal

7.2.1 Schedule of Objectives 2009

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

7.2.2 Schedule of Objectives 2010

A schedule of targets and objectives for 2010 has been set by the management of the Sligo facility. These objectives are outlined in Table 7.2.

Table 7.1 Schedule of Objective and Targets 2009

No.	Ref	Objective	Target	Responsibility	Timescale	Update
1	ENV	Establish a programme for the assessment of resource usage and the implementation of reduction initiatives to reduce carbon footprint by 10% over next 5 years	Undertake a resource/energy balance survey in accordance with the Agency's "Guidance Note on Energy Efficiency Auditing"; 2003	Facility Manager	Q2 2009	Not Completed
			Implement energy/resource usage reduction activities	Facility Manager	Following Issue of Energy Audit	Not Completed
2	ENV	Ensure dust emissions are within EPA limit values	During dry periods regular sweeping and dampening down of the yard surface	Yard Manager	Ongoing	Completed
3	ENV	Ensure odour emissions are eliminated and/or controlled	Inspect odour abatement system on a regular basis and report on its effectiveness	Yard Manager	Ongoing	Completed
			Ensure no odorous waste loads are stored at the facility	Facility Manager	Ongoing	Completed
4	ENV	Improve foul and surface water quality	Apply for connection to Sligo Main Drainage Scheme	Facility Manager	As soon as Completed by Council. Expected 2009	Application submitted Q4 2009
5	ENV	Prevent litter distribution	Ensure litter is removed at the end of each working day	Yard Manager	Ongoing	Completed
6	ENV	To improve recycling rates and increase the amount of household waste diverted from landfill	Improve existing civic amenity area and design and develop MRF. Install new waste separation bays and mobile loading ramps. Commission new timber shredder.	Commercial Manager	Ongoing	Completed. New waste separation bays, mobile loading ramps and improved signage have been incorporated into the MRF building in 2009
7	H&S	Improve Traffic Management Programme	Reline the yard markings at the civic amenity area.	Yard Manager	Q2 2009	Completed
8	ENV	Complete Fencing at back of Yard	Instruct contractor to begin the installation of new fencing to the rear of the site	Yard Manager	Q2 2009	Completed
9	H&S	Emergency Response Training	Carry out emergency response training for all staff e.g. fire drills etc.	Yard Manager	Ongoing	Completed Q4 2009
10	ENV	Environmental Monitoring	Carry out all environmental monitoring requirements as per licence requirements	Facility Manager	Ongoing	Completed

Table 7.2 Schedule of Objective and Targets 2010

No.	Objective	Target	Timescale
1	Awareness and Training	Continue to ensure that appropriate training is carried out specific to all site personnel as per the Company's established Training Matrix. Spill training, inclusive of a spill scenario to be carried out.	Ongoing
2	Energy & Resource Consumption	Summarise energy and resource usage on a quarterly basis with a view to reducing consumption	Ongoing
3	Review and Assess the Effectiveness of Nuisance Control Procedures	Continually review and assess all nuisance control procedures to ensure minimal impact on the surrounding area.	Ongoing
4	Pollution Prevention	Strive to ensure that monitoring results comply with the licence limits and investigate any exceedances of emission limit values. Continue to ensure the integrity and maintenance of all drainage infrastructure.	Ongoing
5	ISO 14001 Accreditation	Achieve ISO 14001 accreditation.	Q1 2010
6	Improve foul and surface water quality	Apply for connection to Sligo Main Drainage Scheme	Q2 2010

7.3 Communications Programme

Greenstar are committed to setting the standard in waste management and ensuring environmental compliance in all operations. In addition, Greenstar's Environmental Policy makes a specific commitment to make the environmental 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 Policy;
- Waste Licence;
- Licence Application and Review documentation;
- Monitoring Records;
- Complaints File;
- EPA Correspondence File.

Opening Times for Inspection of Records are from 10 am – 4 pm.

Visits to the site should be arranged in advance by ringing the Facility Manager or Supervisor at 071 - 9143037.

7.4 Report Financial Provision

Greenstar has accrued over €3,000,000 in funds, to provide for any potential environmental liabilities at this facility. Greenstar also has adequate insurance cover for environmental liabilities to €6,350,000 for any one occurrence, which will apply to “sudden identifiable and unintended incidents”.

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 3.

APPENDIX 1

Annual Noise Survey

DixonBrosnan
 environmental consultants
 dixonbrosnan.com

Project 2009 annual noise survey at Greenstar Ltd., Deepwater Quay, Sligo – Waste licence W0058-01				
Client O'Callaghan Moran & Associates				
Project no	No pages	Client reference	©DixonBrosnan 2009	
07064	12	W0058-01	v280409	
DixonBrosnan Shronagreehy Kealkill Bantry Co Cork Tel 086 813 1195 damian@dixonbrosnan.com www.dixonbrosnan.com				
Report no	Date	Status	Prepared by	Chkd
07064.3.1	13.07.09	Release to client	Damian Brosnan	CD
This report and its contents are copyright of DixonBrosnan. It may not be reproduced without permission. The report is to be used only for its intended purpose. The report is confidential to the client, and is personal and non-assignable. No liability is admitted to third parties.				
Do you really need a printed copy of this report?				

Contents

1 Introduction	3
2 Results & analysis	3
3 Conclusions	4
Appendix 1: Glossary	5
Appendix 2: EPA waste licence W0058-01 noise conditions	7
Appendix 3: Monitoring stations	8
Appendix 4: Methodology	9
Appendix 5: Traffic count data	10
Appendix 6: Noise data	11
Appendix 7: Frequency spectra	12

1 Introduction

1.1 DixonBrosnan Environmental Consultants were commissioned by O'Callaghan Moran & Associates, on behalf of their client Greenstar Ltd., to carry out the 2009 annual noise survey at the latter's waste management facility at Deepwater Quay, Sligo. The facility is operated in accordance with waste licence W0058-01 issued by the Environmental Protection Agency (EPA). The licence includes several conditions relating to noise. The conditions are presented in **Appendix 2**.

1.2 The noise survey was carried out on Thursday 02.07.09 at four onsite monitoring stations specified in the site waste licence and shown in **Appendix 3**. Survey methodology, weather conditions and equipment specifications are described in **Appendix 4**. Throughout the noise survey, noise emissions arose from operations being undertaken at the study site. The dominant source of emissions onsite was traffic entering and leaving through the main entrance, particularly heavy commercial vehicles, and a forklift truck operating on external yard areas. Noise emissions also arose from cars accessing the civic amenity site and from processing activities being carried out in the main site building.

1.3 Schedule E.3 of waste licence W0058-01 specifies that the noise survey is to *'include a traffic count at the entrance to the facility, and note general traffic movements in the area during the monitoring period'*. Traffic count data recorded by the noise survey operator are presented in **Appendix 5**.

2 Results & analysis

2.1 Noise levels recorded are presented in **Appendix 6**. Frequency spectra as one third octave bands are shown in **Appendix 7**.

2.2 The $L_{Aeq\ 30\ min}$ level recorded at station N1 was 63 dB. Recorded data were significantly influenced by the forklift truck passing close to N1 regularly. Levels here were also influenced by other onsite sources, and sporadic activity offsite at an adjacent oil depot.

2.3 The $L_{Aeq\ 30\ min}$ level recorded at N2 was 67 dB. Noise emissions audible here included forklift truck movements, vehicle movements through the adjacent entrance to the onsite civic amenity area, and public road traffic. As at N1, forklift truck emissions were dominant here.

2.4 At N5 the $L_{Aeq\ 30\ min}$ level measured was 63 dB, arising from truck and forklift movements around the surrounding yards and in the main building. Site emissions gradually reduced during this interval as operations shut down.

2.5 The 54 dB $L_{Aeq\ 30\ min}$ level recorded at N6 includes a -3 dB correction due to surrounding reflections. Noise levels here were influenced by several onsite sources including waste processing activities, plant movement around the yard and civic amenity area users. Offsite, a conveyor belt operating at a nearby premises was audible at a low level continuously. Intermittent traffic on industrial estate roads was also significant.

2.6 Condition 7.6.2 of waste licence W0058-01 specifies that daytime $L_{Aeq\ 30\ min}$ levels arising from onsite operations shall not exceed the 55 dB daytime limit by more than 2 dB *when measured at the specified noise sensitive locations*. No noise sensitive locations are specified in the licence. The EPA defines a noise sensitive receptor as:

Any dwelling, house, hotel or hostel, health building, educational establishment, or any other facility or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.

2.7 The nearest sensitive receptors are private residences located approximately 200 m to the east of the facility across the Garavogue River at Cartron, Sligo. There are also some individual residences located close to the Finiskiln Industrial Estate approximately 200 m south of the facility. An inspection undertaken in the vicinity of the nearest sensitive locations prior to the onsite noise survey indicated that noise emissions from the study site were not audible or discernible amidst all other noise sources here.

2.8 Condition 7.6.1 of the licence states that *there shall be no clearly audible tonal component or impulsive component in the noise emissions from the activity at the noise sensitive locations*. No tones or impulses were discernible at the offsite sensitive locations noted above. One third octave band frequency analysis detected a tone in the 50 Hz band at N5, and in the 12500 Hz band at N6. Neither of these was audible at offsite sensitive receptors. The latter was most likely associated with squeaking conveyor components at an offsite premises.

3 Conclusions

3.1 $L_{Aeq\ 30\ min}$ levels recorded at the four boundary stations ranged from 54 to 67 dB. The daytime noise limit of 55 dB specified in waste licence W0058-01 applies to *specified noise sensitive locations*. Onsite operations did not give rise to noise levels over 55 dB at offsite sensitive receptors. No tones or impulses were attributable to onsite noise sources at these receptors. It follows that Conditions 7.6.1 and 7.6.2 of the licence were not breached.

Appendix 1: Glossary

Ambient	The total noise environment at a location, including all sounds present.												
A-weighting	The weighting or adjustment applied to sound level recordings to approximate the non-linear frequency response of the human ear. The A-weighting is denoted by the suffix A in the parameters listed below such as L_{Aeq} , L_{A10} , etc.												
Background noise	The A-weighted sound pressure level of the residual noise in decibels exceeded for 90% of a given time interval. The L_{A90} .												
Decibel (dB)	<p>The units of the noise measurement scale. Based on logarithmic scale so cannot be simply added or subtracted. A 3 dB difference is the smallest change perceptible to the human ear. A 10 dB difference is perceived as a doubling or halving of the sound level. Throughout this report noise levels are presented as decibels relative to 20 μPa. Examples of decibel levels are as follows:</p> <table><tr><td>20</td><td>Very quiet room</td><td>80</td><td>Busy pub</td></tr><tr><td>35</td><td>Rural environment at night</td><td>100</td><td>Nightclub</td></tr><tr><td>65</td><td>Conversation</td><td>120</td><td>Jet take-off</td></tr></table>	20	Very quiet room	80	Busy pub	35	Rural environment at night	100	Nightclub	65	Conversation	120	Jet take-off
20	Very quiet room	80	Busy pub										
35	Rural environment at night	100	Nightclub										
65	Conversation	120	Jet take-off										
Free-field	Noise environment away from all surfaces other than the ground. Noise levels recorded near walls will be artificially increased due to reflections. Where there is more than one wall, noise levels will be further increased. Levels recorded within such 'near-field' conditions will be increased by up to 3 dB, and up to 6 dB near a corner. In practice, free-field conditions will be achieved by maintaining a separation distance of at least 3.5 m from walls.												
Frequency	The number of cycles per second of a sound or vibration wave. An example of a low frequency noise is a hum, while a whine represents a higher frequency. The range of human hearing approaches 20-20,000 Hz.												
Hertz (Hz)	The unit of frequency measurement.												
Impulse	A noise which is of short duration, typically less than one second, the sound pressure level of which is significantly higher than the background.												
Interval	The time period t over which noise monitoring is conducted. May be 5-60 minutes, depending on the standard applied. The interval is usually denoted by t as in $L_{Aeq t}$, $L_{A90 t}$, etc.												
$L_{Aeq t}$	The equivalent continuous sound level during a measurement interval, effectively representing the average A-weighted noise level.												
L_{AF}	The A-weighted sound pressure level measured using a fast time weighting and averaged over one second. The L_{AF} value therefore changes each second.												

L_{Aeq}	The A-weighted sound pressure level at a particular instant, measured using an impulse time weighting on the sound level meter. May be used in the assessment of impulse noise.
$L_{An t}$	The A-weighted sound level which is exceeded for n% of the measurement interval.
L_{Cpeak}	The peak C-weighted sound pressure level recorded during the measurement interval. The highest peak on the sound pressure wave before any time constant is applied. The C-weighting is used rather than the A-weighting as the latter screens out low frequency sources.
$L_{Req t}$	The rating noise level, derived from the $L_{Aeq t}$ plus specified adjustments for tonal and impulsive characteristics.
L_{den}	A description of the day-evening-night noise level. Calculated from separate daytime, evening and night-time noise levels using a specified formula.
L_{WA}	The sound power generated by a noise source due to the conversion of work energy into noise energy. Measured with A-weighting.
$L_{AF10 t}$	The A-weighted sound level measured using a fast time weighting which is exceeded for 10% of the measurement interval, usually used to quantify traffic noise.
$L_{AF90 t}$	The A-weighted sound level measured using a fast time weighting which is exceeded for 90% of the measurement interval, usually used to quantify background noise. May also be used to describe the noise level from a continuous steady or almost-steady source, particularly where the local noise environment fluctuates.
Near-field	Area where free field conditions do not apply.
Noise sensitive location	Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.
1/3 octave band analysis	Frequency analysis of sound such that the frequency spectrum is subdivided into bands of one third of an octave each. An octave is taken to be a frequency interval, the upper limit of which is twice the lower limit in Hertz.
Residual noise	The noise level remaining at a given position in a given situation when the specific noise source is absent or does not contribute to the noise level.
Specific noise	The noise source under investigation for assessing the likelihood of complaints.
Tone	A character of the noise caused by the dominance of one or more frequencies which may result in increased noise nuisance.
Z-weighting	Standard weighting applied by sound level meters to represent linear scale.

Appendix 2: EPA waste licence W0058-01 noise conditions

Condition 7.6.1

There shall be no clearly audible tonal component or impulsive component in the noise emissions from the activity at the noise sensitive locations.

Condition 7.6.2

Noise from the activity shall not give rise to sound pressure levels (Leq, 30min) measured at the specified noise sensitive locations which exceed the emission limit value(s) as stipulated in Schedule F: Emission Limit Values of this licence by more than 2 dB(A).

Condition 9.4.1

Noise monitoring shall be carried out during operational hours. The first such monitoring event shall be undertaken within three months of the date of grant of this licence.

Schedule E.1 (extract)

Noise Monitoring Locations (as per Figures 2.3.1 and 2.3.2 EIS): N1, N2, N5, and N6.

Schedule E.3

Noise Monitoring Frequency and Technique

PARAMETER	MONITORING FREQUENCY	ANALYSIS METHOD/TECHNIQUE
L(A) _{EQ} [30 minutes] ^{Note 1}	Annual ^{Note 2}	Standard ^{Note 3}
L(A) ₁₀ [30 minutes] ^{Note 1}	Annual ^{Note 2}	Standard ^{Note 3}
L(A) ₉₀ [30 minutes] ^{Note 1}	Annual ^{Note 2}	Standard ^{Note 3}
Frequency Analysis(1/3 Octave band analysis) ^{Note 1}	Annual ^{Note 2}	Standard ^{Note 3}

Note 1: Monitoring shall include a traffic count at the entrance to the facility, and note general traffic movements in the area during the monitoring period.

Note 2: The first such monitoring event shall be undertaken within three months of the commencement of waste activities at this facility.

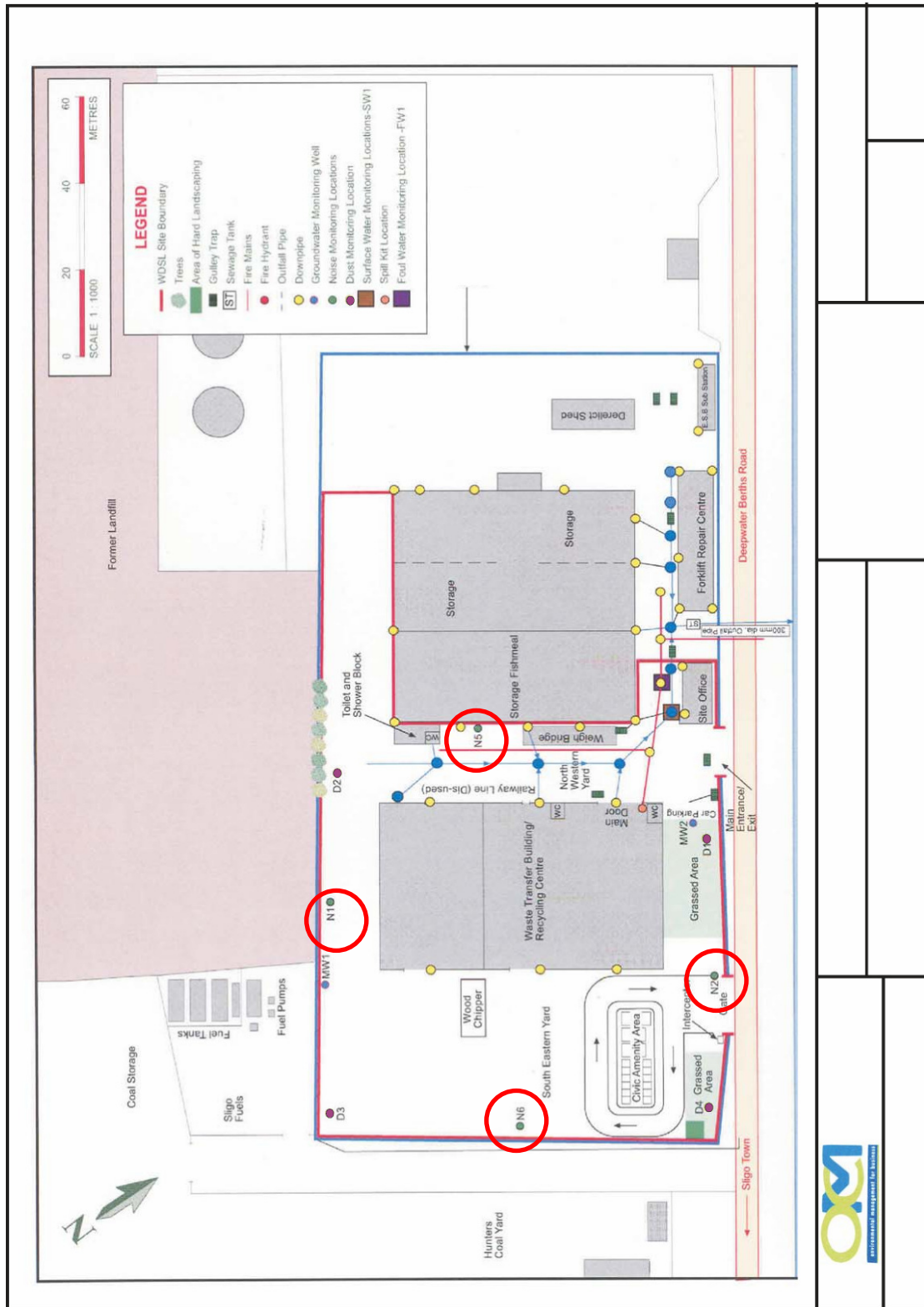
Note 3: "International Standards Organisation. ISO 1996. Acoustics - description and Measurement of Environmental noise. Parts 1, 2 and 3."

Schedule F.4

Noise Emissions:

DAY DB(A) L _{AEQ} (30 MINUTES)	NIGHT DB(A) L _{AEQ} (30 MINUTES)
55	45

Appendix 3: Monitoring stations



Appendix 4: Methodology

Survey	Project ref.	07064
	Purpose	2009 annual noise survey
	Locations	N1 N2 N5 N6
	Comment	Facility operating
Event	Date	02.07.09
	Day	Thursday
	Time	Afternoon
Operator	On behalf of DixonBrosnan	Damian Brosnan
Conditions	Cloud cover	100%
	Precipitation	0 mm
	Temperature	22 °C
Wind	Speed	0-1 m/s
	Direction	SW
	Measurement	Anemo anemometer 2 m above ground level
Sound level meter	Instrument	Bruel & Kjaer Type 2250-L
	Instrument serial no.	2566801
	Microphone serial no.	2571655
	Application	BZ7130 Version 2.0
	Bandwidth	Broadband
	Max input level	142.66 dB
	Broadband (excl. peak)	Time: FSI Frequency: AC
	Broadband peak	Frequency: C
	Windscreen correction	UA-0237
	Sound Field correction	Free-field
	UKAS calibration	16.01.07
	UKAS calibration certificate	Available on request
	Onsite calibration	Time
Calibration type		External
Sensitivity		40.67 mV/Pa
Post measurement check		93.9 dB
Onsite calibrator	Instrument	Bruel & Kjaer Type 4231
	Instrument serial no.	1723667
	UKAS calibration	14.08.08
	UKAS calibration certificate	Available on request
Monitoring methodology	International Standard ISO 1996	<i>Acoustics: Description and measurement of environmental noise Part 1 (2003) & Part 2 (2007)</i>
	Exceptions	N6: <3.5 m from skips
	Intervals	30 min

Appendix 5: Traffic count data

Traffic movements recorded 02.07.09

Station		N1	N2	N5	N6
Time		1535-1605	1429-1500	1607-1637	1502-1532
Traffic movements through main entrance	Cars/vans in	2	3	1	8
	Cars/vans out	2	3	0	7
	HCVs in	1	4	2	1
	HCVs out	1	4	4	2
No. of users' cars entering civic amenity area		-*	5	-*	14
General traffic activity on public road		Approximately 1 vehicle per minute during all measurements, excluding Greenstar movements.			

*Civic amenity vehicle movements not counted during N1 and N5 measurements as movements not audible here.

Appendix 6: Noise data

Noise levels recorded 02.07.09

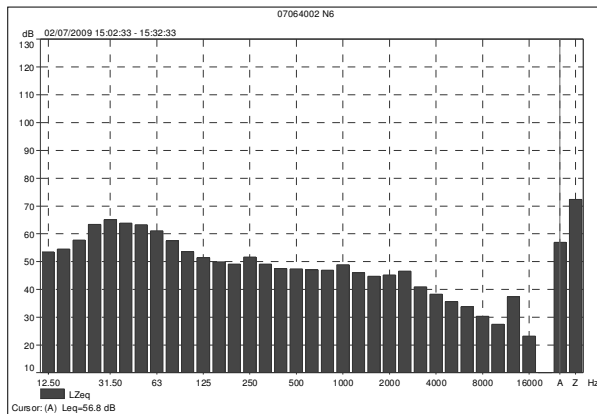
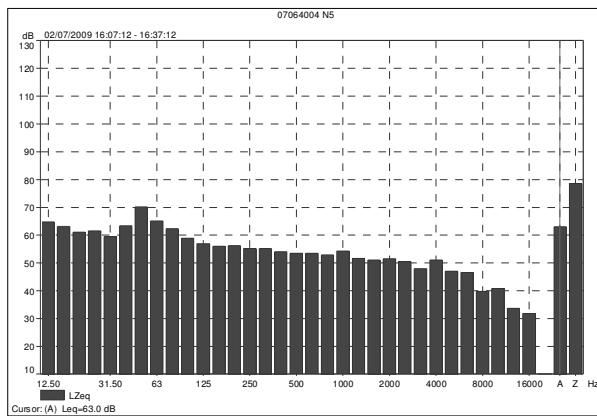
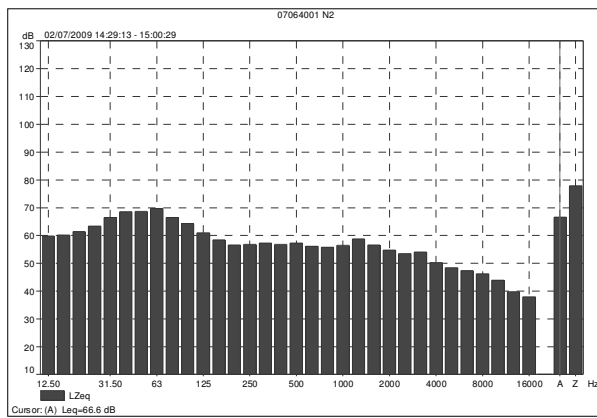
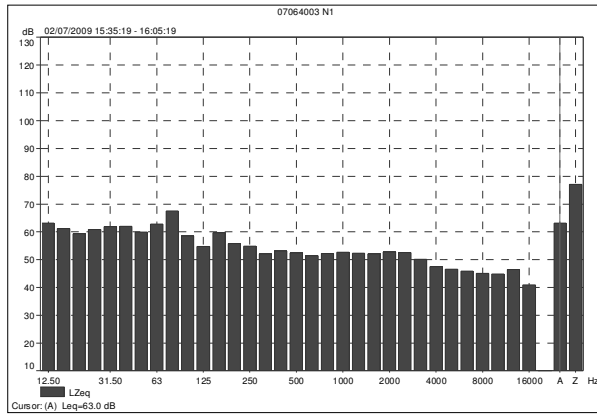
Station	Time	L _{Aeq} 30 min dB	L _{A10} 30 min dB	L _{A90} 30 min dB	Noise audible
N1	1535-1605	63	59	46	FLT occasionally passing SLM dominant. Trucks moving around yard areas audible. Plant and trucks operating within main building audible continuously at low level. Crows significant. Extraneous: road traffic to NE, and sporadic truck movements at adjacent oil depot.
N2	1429-1500	67	68	55	Noise dominated by FLT operating in vicinity of civic amenity area. Also noise from users of civic amenity area and sporadic management operations. Vehicle movement on onsite yards audible. Offsite traffic audible on adjacent industrial estate roads.
N5	1607-1637	63	64	44	Plant and trucks audible within main building. FLT and trucks moving around adjacent yard dominant. However, site quietening gradually, and few emissions during last 10 min. Crows significant. Traffic passing on industrial estate road audible.
N6*	1502-1532	54*	56*	45*	FLT moving around yard areas significant. Also occasional truck movements. Plant and trucks operating within main building audible at low level. Users at civic amenity area audible. Conveyor belt operating offsite at nearby premises audible at low level continuously. Intermittent traffic on industrial estate roads, particularly road outside N6.

FLT: Forklift truck

SLM: Sound level meter

*At station N6 the sound level meter was positioned 2 m from large skips surrounding the monitoring station. N6 noise data presented in the table have been corrected in accordance with *International Standards Organisation ISO1996 Acoustics: Description and measurement of environmental noise Part1 (2003) and Part 2 (2007)*. The correction applied is -3 dB.

Appendix 7: Frequency spectra



APPENDIX 2

Procedures List

Doc. No.: Control	Revision No.: As Shown	Issue Date: As Shown
Approved By: Suzanne Byrne		Page 1 of 3

Integrated Procedures

IP 01	Document & Data Control Procedure	Rev 01, 10/07/09
IP 02	Environmental Aspects & Impacts Procedure	Rev 01, 10/07/09
IP 03	Environmental Legal & Regulatory Requirements Procedure	Rev 01, 10/07/09
IP 04	Environmental Objectives, Targets & Management Programmes Procedure	Rev 01, 10/07/09
IP 05	Competence, Training & Awareness Procedure	Rev 02, 20/01/10
IP 06	Communication & Consultation Procedure	Rev 02, 06/10/09
IP 07	Monitoring, Measurement & Improvement Procedure	Rev 01, 10/07/09
IP 08	Evaluation of Compliance Procedure	Rev 02, 17/08/09
IP 09	Non Conformances, Corrective/Preventive Actions Procedure	Rev 02, 06/10/09
IP 10	EMS Internal Audit Procedure	Rev 02, 20/01/10
IP 11	Management Review Procedure	Rev 01, 10/07/09

Operational Procedures

OP 01	Waste Acceptance Procedure	Rev 01, 10/07/09
OP 02	Unacceptable Waste Procedure	Rev 01, 10/07/09
OP 03	Waste & Material Storage Procedure	Rev 01, 10/07/09
OP 04	Waste Processing Procedure	Rev 01, 10/07/09
OP 05	Waste Permits & Licences Procedure	Rev 01, 10/07/09
OP 06	Maintenance & Calibration Procedure	Rev 02, 17/08/09
OP 07	Control of Contractors/Visitors Procedure	Rev 01, 10/07/09
OP 08	Civic Amenity Site Procedure	Rev 02, 17/08/09

Environmental Procedures

EP 01	Office Waste & Energy Management Procedure	Rev 01, 10/07/09
EP 02	Environmental Monitoring Procedure	Rev 01, 10/07/09
EP 03	Emergency Preparedness & Response Procedure	Rev 01, 10/07/09
EP 04	Nuisance Management Procedure	Rev 02, 17/08/09
EP 05	Decommissioning and Aftercare Procedure	Rev 01, 10/07/09
EP 06	Site Infrastructure Procedure	Rev 02, 17/08/09
EP 07	EPA Communications Procedure	Rev 01, 10/07/09



Amendment History - Procedure Listing

Doc. No.: Control

Revision No.: As Shown

Issue Date: As Shown

Approved By: Suzanne Byrne

Page 2 of 3

Amendment History

Date	Amendment No.	Procedure No:	Revision No:	Comment	Authorised By
10/04/09	01	All	Draft 01	Issued for comment	<i>Suzanne Byrne</i>
10/07/09	02	All	Rev 01	Official Issue	<i>Suzanne Byrne</i>
17/08/09	03	IP 08, OP 06, OP 08, EP 04 & EP 06	Rev 02	Amendment to include EF-04A(i) Sligo, EF-04B SERCL, EF-0B(i) Sligo & EF-04C SERCL & EF-04C(i) Sligo	<i>Suzanne Byrne</i>
06/10/09	04	IP 09	Rev 02	Amendment to include Communications Database	<i>Suzanne Byrne</i>
20/01/10	05	IP 10	Rev 02	Deletion of Audit Checklist IF 10B	<i>Suzanne Byrne</i>
20/01/10	06	IP 05	Rev 02	Deletion of Procedure Sign off Sheet IF 05B	<i>Suzanne Byrne</i>



Doc. No.: Control	Revision No.: 01	Issue Date: 10/07/09
Approved By: Suzanne Byrne		Page 3 of 3

Circulation List

The Environmental Procedures Manual is a controlled document retained by the Environmental Executive. The Environmental Executive will ensure that all approved amendments are made and circulated accordingly. Copies other than those listed in the table below are uncontrolled.

Copy No.	Holder
1 (Master copy)	Environmental Executive
2	Greenstar Limited – Waterford EPA Licence No: W0116-02
3	Greenstar Limited – Sligo EPA Licence No: W0058-01
4	South East Recycling Company Limited EPA Licence No: W0111-01

APPENDIX 3

PRTR Returns



Environmental Protection Agency

| PRTR# : W0058 | Facility Name : Deepwater Quay | Filename : W0058_2009.xls |
Return Year : 2009 |

AER Returns Worksheet

Version 1.1.10

REFERENCE YEAR	2009
-----------------------	------

1. FACILITY IDENTIFICATION

Parent Company Name	Greenstar Limited
Facility Name	Deepwater Quay
PRTR Identification Number	W0058
Licence Number	W0058-01

Waste or IPPC Classes of Activity

No.	class_name
3.11	Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule.
3.13	Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.
4.13	Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.
4.2	Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).
4.3	Recycling or reclamation of metals and metal compounds.
4.4	Recycling or reclamation of other inorganic materials.
Address 1	Sligo
Address 2	
Address 3	
Address 4	
Country	Ireland
Coordinates of Location	-8.48919 54.28
River Basin District	IEWE
NACE Code	3821
Main Economic Activity	Treatment and disposal of non-hazardous waste
AER Returns Contact Name	Mr Malcolm Dowling
AER Returns Contact Email Address	malcolm.dowling@greenstar.ie
AER Returns Contact Position	Environmental & Site Manager
AER Returns Contact Telephone Number	071 9143037/087 29036637
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	0
User Feedback/Comments	
Web Address	

2. PRTR CLASS ACTIVITIES

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

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

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

4.1 RELEASES TO AIR

| PRTR# : W0058 | Facility Name : Deepwater Quay | Filename : W0058_2009.xls | Return Year : 2009 |

01/04/2010 12:13

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

POLLUTANT		METHOD			QUANTITY			
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

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

SECTION B : REMAINING PRTR POLLUTANTS

POLLUTANT		METHOD			QUANTITY			
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

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

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

POLLUTANT		METHOD			QUANTITY			
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

* 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:

Deepwater Quay

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

	T (Total) kg/Year	M/C/E	Method Used		Facility Total Capacity m3 per hour
			Method Code	Designation or Description	
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

| PRTR# : W0058 | Facility Name : Deepwater Quay | Filename : W0058_2009.xls | Return Year : 2009 |

01/04/2010 12:13

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 on

RELEASES TO WATERS									
POLLUTANT		Method Used			QUANTITY				
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	Emission Point 2	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
79	Chlorides (as Cl)	E	Estimate	Flow based on estimate of rainfall and area of site. Analysis is ISO accredited	165.989	0.9555	166.9445	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									
POLLUTANT		Method Used			QUANTITY				
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	F (Fugitive) KG/Year
					0.0	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									
POLLUTANT		Method Used			QUANTITY				
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	Emission Point 2	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
238	Ammonia (as N)	E	Estimate	Flow based on estimate of rainfall and area of site. Analysis is ISO accredited	26.97681	0.87711	27.85392	0.0	0.0
306	COD	E	Estimate	Flow based on estimate of rainfall and area of site. Analysis is ISO accredited	352.89	2.6925	355.5825	0.0	0.0
303	BOD	E	Estimate	Flow based on estimate of rainfall and area of site. Analysis is ISO accredited	52.28	1.335	53.615	0.0	0.0
240	Suspended Solids	E	Estimate	Flow based on estimate of rainfall and area of site. Analysis is ISO accredited	209.12	0.98	210.1	0.0	0.0
308	Detergents (as MBAS)	E	Estimate	Flow based on estimate of rainfall and area of site. Analysis is ISO accredited	0.31368	0.04904	0.36272	0.0	0.0
324	Mineral oils	E	Estimate	Flow based on estimate of rainfall and area of site. Analysis is ISO accredited	4.5222	0.00861	4.53081	0.0	0.0
314	Fats, Oils and Greases	E	Estimate	Flow based on estimate of rainfall and area of site. Analysis is ISO accredited	8.7569	0.02522	8.78212	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

| PRTR# : W0058 | Facility Name : Deepwater Quay | Filename : W0058_2009.xls | Return Year : 20

01/04/2010 12:13

SECTION A : PRTR POLLUTANTS

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

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

4.4 RELEASES TO LAND

| PRTR# : W0058 | Facility Name : Deepwater Quay | Filename : W0058_2009.xls | Return Year : 2009 |

01/04/2010 12:13

SECTION A : PRTR POLLUTANTS

RELEASES TO LAND							
POLLUTANT		METHOD			QUANTITY		
No. Annex II	Name	M/C/E	Method Used		Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
			Method Code	Designation or Description			
						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)

RELEASES TO LAND							
POLLUTANT		METHOD			QUANTITY		
Pollutant No.	Name	M/C/E	Method Used		Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
			Method Code	Designation or Description			
						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

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

| PRTR# : W0058 | Facility Name : Deepwater Quay | Filename : W0058_2009.xls | Return Year : 2009 |

01/04/2010 12:15

3

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 Haz Waste : Name and Licence/Permit No of Recoverer/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recoverer/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	02 07 04	No	207.99	Mixed Powders	R3	M	Weighed	Offsite in Ireland	EnviroGrind,ENV/143/WP4	Donegal Road,Pettigo,Co. Donegal,.,Ireland		
Within the Country	02 07 05	No	822.96	Sludge	R3	M	Weighed	Offsite in Ireland	EnviroGrind,ENV/143/WP4	Donegal Road,Pettigo,Co. Donegal,.,Ireland		
Within the Country	15 01 01	No	466.22	Cardboard Packaging	R3	M	Weighed	Offsite in Ireland	Bailey Waste Paper,WPT(1)B	16,.,Ireland		
To Other Countries	15 01 01	No	47.77	Old OCC Baled	R3	M	Weighed	Abroad	Cellmark Recycling Benelux BV,IRE/G003/08	Heuvel 7,NL-5664	HK,Geldrop,.,Netherlands	
Within the Country	15 01 01	No	49.86	Old OCC Baled	R3	M	Weighed	Offsite in Ireland	IPR,WPR 021/02	Road,Walkinstown,Dublin 12,.,Ireland		
To Other Countries	15 01 01	No	71.76	Old OCC Baled	R3	M	Weighed	Abroad	NCH International LCC Ltd,IRE/G113/08	3 Clarendon Road,Herts,AL5 4NS,.,United Kingdom		
Within the Country	15 01 04	No	0.62	Aluminium	R4	M	Weighed	Offsite in Ireland	Erin Recyclers,WP SO-03-10	Leitrim,.,.,Ireland		
Within the Country	15 01 04	No	14.26	Aluminium Cans	R4	M	Weighed	Offsite in Ireland	Erin Recyclers,WP SO-03-10	Leitrim,.,.,Ireland		
Within the Country	15 01 04	No	46.19	Steel Cans	R4	M	Weighed	Offsite in Ireland	Erin Recyclers,WP SO-03-10	Leitrim,.,.,Ireland		
Within the Country	15 01 06	No	20.45	Mixed Packaging	R13	M	Weighed	Offsite in Ireland	Greenstar Ltd.,W0183-01	11,.,Ireland		
To Other Countries	15 01 06	No	95.21	Mixed Packaging	R5	M	Weighed	Abroad	Regen Waste,LN/05/01/B	Shepherd's Drive,Carnbane Industrial Estate,Newry Co. Down,BT35 6JQ,United Kingdom		
Within the Country	15 01 06	No	1162.87	Mixed Packaging	R5	M	Weighed	Offsite in Ireland	Wheelie Environmental Refuse Services,WP084	Weir Road Industrial Estate,Tuam,Co. Galway,.,Ireland		
Within the Country	15 01 07	No	107.56	Glass Packaging	R5	M	Weighed	Offsite in Ireland	Rehab Recycle,WPR-004	Ballymount Avenue,Clondalkin,Dublin 12,.,Ireland		
Within the Country	16 01 21	Yes	5.82	Batteries	R4	M	Weighed	Offsite in Ireland	Rilta Environmental,W0192-02	Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,Co. Dublin,Ireland	Rilta Environmental,W0192-02,Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,Co. Dublin,Ireland	Block 402 Grant's Drive,Greenogue Business Park,Rathcoole,Co. Dublin,Ireland
Within the Country	17 01 07	No	941.97	C&D Inert Mixed	R5	M	Weighed	Offsite in Ireland	Norris Plant Hire,WP SO-05-52	Cloverhill,Co. Sligo,.,.,Ireland		
Within the Country	17 04 01	No	0.47	Copper	R4	M	Weighed	Offsite in Ireland	Erin Recyclers,WP SO-03-10	Leitrim,.,.,Ireland		
Within the Country	17 04 01	No	2.3	Cables	R4	M	Weighed	Offsite in Ireland	Erin Recyclers,WP SO-03-10	Leitrim,.,.,Ireland		
Within the Country	17 05 04	No	38.61	C&D Inert Mixed	R5	M	Weighed	Offsite in Ireland	Norris Plant Hire,WP SO-05-52	Cloverhill,Co. Sligo,.,.,Ireland		
Within the Country	19 12 01	No	88.62	Newsprint	R3	M	Weighed	Offsite in Ireland	IPR,WPR 021/02	Road,Walkinstown,Dublin 12,.,Ireland		
Within the Country	19 12 07	No	11.27	Wood	R3	M	Weighed	Offsite in Ireland	Arigna Fuels Ltd.,WMP 14/06	Arigna ,Carrick on Shannon,Co. Roscommon,.,Ireland		

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	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		Non	Non Haz Waste: Address of Recover/Disposer				
Within the Country	19 12 09	No	492.38	Fines C&I	R5	M	Weighed	Offsite in Ireland	Greenstar Ltd. ,W0178-01		East Galway Landfill,Killagh More Ballybaun,Ballintober Ballinasloe,Co. Galway,Ireland			
Within the Country	19 12 12	No	16863.84	C&I Dry Mixed	D5	M	Weighed	Offsite in Ireland	Greenstar Ltd. ,W0178-01		East Galway Landfill,Killagh More Ballybaun,Ballintober Ballinasloe,Co. Galway,Ireland			
Within the Country	19 12 12	No	2113.47	C&I Dry Mixed	R13	M	Weighed	Offsite in Ireland	Greenstar Ltd.,W0183-01		Millennium Business Park,Ballycoolin,Dublin 11,,Ireland			
Within the Country	20 01 01	No	240.01	Newsprint	R3	M	Weighed	Offsite in Ireland	Bailey Waste Paper,WPT(1)B		Rosemount Business Park,Blanchardstown,Dublin 16,,Ireland			
Within the Country	20 01 01	No	28.43	Mixed Waste Papers Baled	R3	M	Weighed	Offsite in Ireland	Bailey Waste Paper,WPT(1)B		Rosemount Business Park,Blanchardstown,Dublin 16,,Ireland			
Within the Country	20 01 01	No	134.33	News & Pams Baled	R3	M	Weighed	Offsite in Ireland	Bailey Waste Paper,WPT(1)B		Rosemount Business Park,Blanchardstown,Dublin 16,,Ireland			
Within the Country	20 01 01	No	48.38	Sorted Office Waste	R3	M	Weighed	Offsite in Ireland	Bailey Waste Paper,WPT(1)B		Rosemount Business Park,Blanchardstown,Dublin 16,,Ireland			
Within the Country	20 01 02	No	14.66	Glass	R5	M	Weighed	Offsite in Ireland	Rehab Recycle,WPR-004		Ballymount Avenue,Clondalkin,Dublin 12,,Ireland			
Within the Country	20 01 11	No	24.35	Textile	R5	M	Weighed	Offsite in Ireland	Textile Recycling Ltd.,WPR014		Glen Abby Complex,Belgard Road,Tallaght,Dublin 24,Ireland			
Within the Country	20 01 35	Yes	233.0	Rec Electronics & Electrics	R5	M	Weighed	Offsite in Ireland	KMK Metals Recycling Ltd.,W0113-01		Cappincur Industrial Estate, Daingean Road,Tullamore,Co. Offaly,Ireland	KMK Metals Recycling Ltd.,W0113-01,Cappincur Industrial Estate, Daingean Road,Tullamore,Co. Offaly,Ireland	Cappincur Industrial Estate, Daingean Road,Tullamore,Co. Offaly,Ireland	
Within the Country	20 01 36	No	11.65	Rec Electronics & Electrics	R5	M	Weighed	Offsite in Ireland	KMK Metals Recycling Ltd.,W0113-01		Offaly,Ireland			
Within the Country	20 01 38	No	248.83	Wood	R3	M	Weighed	Offsite in Ireland	Arigna Fuels Ltd.,WMP 14/06		Roscommon,,Ireland 77 Clooney			
To Other Countries	20 01 39	No	265.11	Plastic Packaging	R3	M	Weighed	Abroad	Peak Environmental (UK) Ltd.,WDL-14		Road,Campsie,Londonderry, BT47 3PA,United Kingdom			
Within the Country	20 01 40	No	287.39	Metal	R4	M	Weighed	Offsite in Ireland	Erin Recyclers,WP SO-03-10		Leitrim,,Ireland Kinlough,Co.			
Within the Country	20 01 40	No	3.51	Stainless Steel	R4	M	Weighed	Offsite in Ireland	Erin Recyclers,WP SO-03-10		Leitrim,,Ireland Heath House,5 Woolgate Court,Norwich,NR2 4AP,United Kingdom			
To Other Countries	15 01 01	No	411.56	Old OCC Baled	R3	M	Weighed	Abroad	International Recycling Ltd.,IRE/G050/08					

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