



Annual Environmental Report

Name: McGill Environmental Systems (Ireland) Limited
Address: Coom, Glenville, Co. Cork
Waste Licence: W0180-01
Reporting Period: January 1st 2015 – December 31st 2015

Signed: 

Heather Loughlin
Environmental Manager

1.0 REPORTING PERIOD

This report covers the period 1st January 2015 – 31st December 2015.

2.0 WASTE ACTIVITIES CARRIED OUT AT THE FACILITY AND QUANTITY/ COMPOSITION OF WASTE RECEIVED, DISPOSED OF AND RECOVERED DURING THE REPORTING PERIOD

2.1 *Waste Activities*

McGill Environmental Systems (Ireland) Ltd operates an in-vessel composting facility in Coom, Glenville, County Cork, under the Conditions of Waste Licence W0180-01.

The facility is also approved as a composting plant under the Animal By-Products Regulations (S.I. No. 187 of 2014). Approval No. Comp 31. This permits the company to accept waste containing animal by-products.

During 2015 over 99% of the facility's feedstock was organic fines from the processing of municipal solid waste (MSW). The remainder of the feedstock was industrial biodegradable waste. The feedstock is mixed with amendment materials such as leaves and sawdust and composted to produce a stabilised biowaste that is used as landfill cover. 'Overs' from the composting process are disposed of to landfill.

In 2015 all composted material and overs were sent to Bord na Mona's Drehid Landfill in County Kildare.

2.2 Incoming Waste

Description of Incoming Waste	List of Waste Code	Quantity accepted from ROI (TONNES)
Sludges from water clarification	02 03 04	13.96
Sludges from on-site effluent treatment other than those mentioned in 03 03 10	03 03 11	0.92
Sludges from water clarification	19 09 02	7.62
Organic Fines*	19 12 12	17,475.90
Edible oils and fats*	20 01 25	2.14
Biodegradable waste	20 02 01	10.4
Septic Tank Sludge	20 03 04	8.66
		17,519.60

*animal by-product waste

Amendment materials	List of Waste Code	Quantity accepted from ROI (TONNES)
Hawthorn leaves	07 05 14	38.86
Ginko leaves	07 05 99	958.44

2.3 Outgoing

Material Description	List of Waste Code	Quantity (TONNES)	Name & address of offsite facility to which waste was sent, also permit or licence number.
Biostabilised waste	6,765.52	6,765.52	Drehid Landfill, Co Kildare W0201-03
Residual oversize material	5,912.94	5,912.94	Drehid Landfill, Co Kildare W0201-04
Biofilter water	1,164.06	1,164.06	Fermoy WWTP

3.0 EMISSIONS AND RESULTS OF ENVIRONMENTAL MONITORING

A summary of monitoring results is included in Appendix 1. The following monitoring was carried out in 2015:

- Compost Analysis results for metals, pathogens and stability are reported quarterly. All samples were compliant.
- All incoming sludges were analysed and reported on a quarterly basis.
- McGill conducted dust monitoring on site for three different 28 day periods during 2014. There was one non-compliance in 2015 due to groundworks being carried out on site at the time of the monitoring. An incident report was filed via EDEN (INCI008605)
- Odour Monitoring Ireland were on site in March and August of 2015 to conduct PM10 and Bioaerosol monitoring. The results of both these visits showed that there are no significant bioaerosol impacts in the vicinity of the facility and the ambient air concentration levels of PM10 were below the statutory 24-hour average ambient air concentration level of $50\mu\text{g m}^3$.
- Biofilter sampling was conducted biannually as per the licence requirement. There were no environmental concerns with the results.
- Groundwater sampling was conducted once in 2015 as per the licence requirement. There were no environmental concerns with the results.
- Surface water sampling was conducted once in 2015 as per the licence requirement. There were no environmental concerns with the results.
- Wastewater from the biofilter was analysed once in 2015.

4.0 RESOURCE AND ENERGY CONSUMPTION SUMMARY

Water usage: 270m³ for the reporting period.

Diesel Usage: 38,012 litres of diesel was used during the reporting period to operate equipment in the facility.

Electricity Usage: McGill have used 355,000 kWh of electricity at the facility during the reporting year

5.0 REPORT ON DEVELOPMENT WORKS UNDERTAKEN DURING THE REPORTING PERIOD, AND A TIMESCALE FOR ANY PROPOSED FOR THE COMING YEAR.

There were no development works on site during 2014 and there are no proposed developments for 2015.

6.0 ENVIRONMENTAL MANAGEMENT PROGRAMME

6.1 Environmental Management Programme 2015 - Update on progress made

The progress made towards the Environmental Management Programme for 2015 is as follows.

This programme was updated in January 2016 as part of the annual EMS update.

Target	Responsibility	Target Date	Status
Implement conditions of Waste Licence	Heather Loughlin/ Niall Carroll	Ongoing	Ongoing
Carry out refresher training for all staff of requirements of the Waste Licence.	Heather Loughlin	End February 2015	Completed February 2015
Attend HACCP Course	Heather Loughlin	End January 2015	Completed 28th January 2015
Carry out full review of EMS	Heather Loughlin	End July 2015	New procedures written for Type 8, to be implemented when approval is granted. Simplified site inspection checklists and batch traceability forms implemented.
Monitor energy usage and identify opportunities for reductions	Heather Loughlin/ Niall Carroll	Ongoing	Ongoing. Nothing identified in 2015. Change to Type 8 may highlight areas for improvement.
Monitoring as per Waste Licence and ABP Requirements	Heather Loughlin	Ongoing	Ongoing

6.1 ENVIRONMENTAL MANAGEMENT PROGRAMME 2016

Target	Responsibility	Target Date
Implement Type 8 procedures and identify areas for improvements in operational efficiency.	Heather Loughlin	End July 2016
Continue with the revision of the Environmental Management System and streamline procedures wherever possible.	Heather Loughlin	End March 2016
Monitor energy usage and identify opportunities for reductions.	Heather Loughlin/Niall Carroll	Ongoing
Investigate the financial viability of covering the biofilter	Heather Loughlin/Niall Carroll	End March 2016
Prepare case for reducing monitoring frequency for noise/dust/odour/water, where appropriate.	Heather Loughlin	End April 2016

7.0 SUMMARY OF PROCEDURES DEVELOPED DURING THE YEAR

During 2015 we made an application to the Department of Food, Agriculture and the Marine to operate as a “Type 8” facility under the Animal By-Products Regulations. The following new procedures were developed and will be implemented when approval is received in 2016:

Procedures (Pre-Requisite Programmes)

- PRP1 Biosecurity Procedure
- PRP2 Waste Intake Procedure
- PRP3 Cleaning & Hygiene Procedure
- PRP4 Vermin Procedure
- PRP5 Process Control Procedure
- PRP6 Dispatch Procedure
- PRP7 Non-conformance, Corrective and Preventive Action Procedure
- PRP8 Audit and Review Procedure

Forms

- Site Inspection Checklist
- Feedstock Acceptance Form
- Acceptance Area Cleaning Record Form
- Dispatch Area Cleaning Record Form
- Commercial Document
- Non Conformance Log
- HACCP Audit Checklist

8.0 BUND TESTING AND INSPECTION REPORT

Bund testing/inspection is scheduled for 2016.

8.0 REPORTED INCIDENTS AND COMPLAINTS SUMMARIES

There were no complaints during 2014.

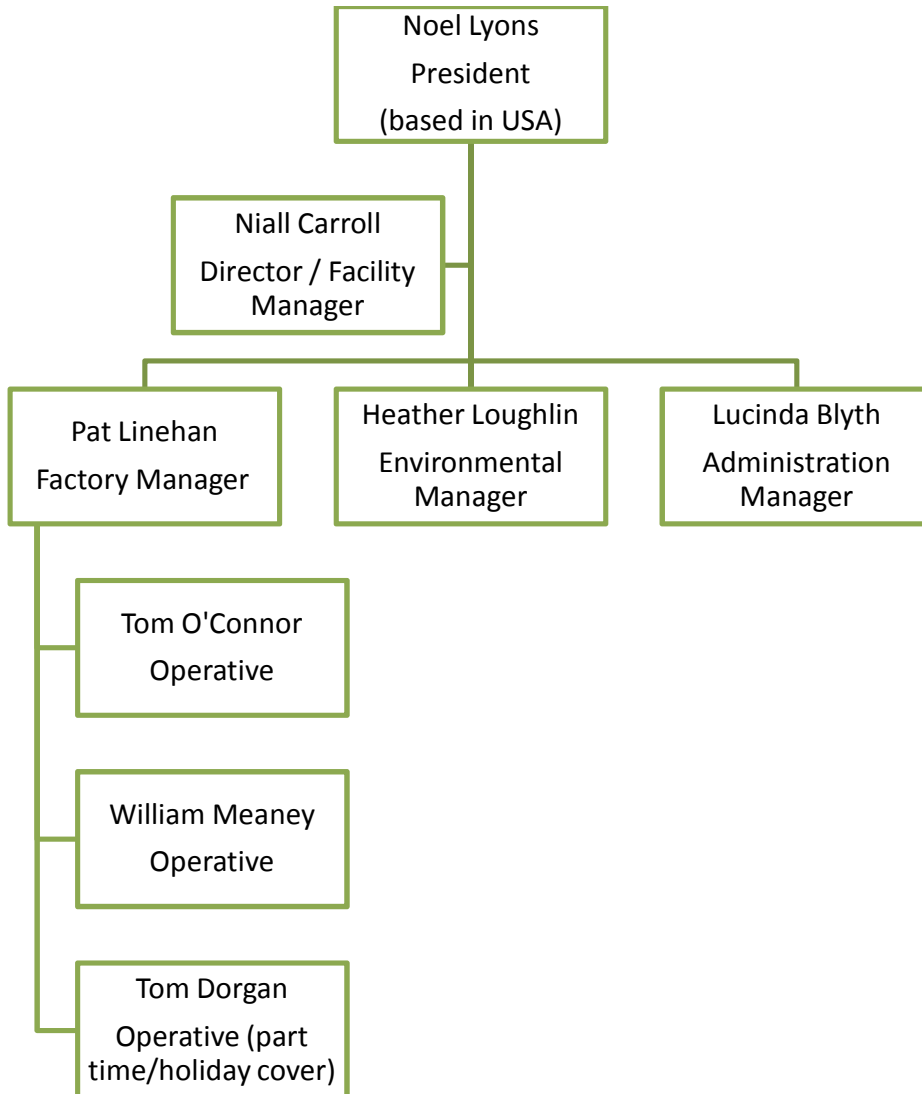
There were no reportable incidents during the reporting period.

9.0 FINANCIAL PROVISIONS, MANAGEMENT AND STAFFING STRUCTURE AND PROGRAMME FOR PUBLIC INFORMATION

9.1 Financial Provisions

McGill have put financial provisions in place to cover any Environmental Risk or Closure costs associated with the site as per the decommissioning and aftercare plan and as per the Environmental Liability Risk Assessment. This was looked at during the year and it was determined that there was no additional risks. These provisions are in the form of a guarantee from McGill Compost, USA, parent company of McGill Environmental Systems (Ireland) Limited

9.2 Management and Staffing Structure



9.0 INFORMATION PROGRAMME

A procedure is in place to ensure that the public can obtain information concerning the environmental performance of the facility at all reasonable times.

During July 2015 the site notice board was replaced to update the out of hours contact information and head office address.

There were no requests for information during 2015.

10.0 FOUL WATER MOVEMENT

McGill transported 1164 tonnes of water from the Biofilter to Fermoy WWTP during the reporting year.

Appendix 1

Summary of Monitoring Results

BIOAEROSOL MONITORING					
Date	Bioaerosol	Ref Concentration Range	Glen 1	Glen 2	Glen 3
23.03.15	Aspergillus fumigatus	1000-5000 CFU m3	<3	<3	<3
23.03.15	Mesophilic Bacteria	5000 - 10000 CFU m3	<409	<561	234
26.08.15	Aspergillus fumigatus	1000-5000 CFU m3	42	<3	<3
26.08.15	Mesophilic Bacteria	5000 - 10000 CFU m3	797	1242	1122

DUST MONITORING							
Sampling End Date	McGill Reference	Monitoring Point	Lab Reference	Units	Result	ELV	Compliant?
12.03.15	GLV DM1 R1 2015	DM1	0360/407/01	mg/m ² /day	62.38	350	YES
12.03.15	GLV DM2 R1 2015	DM2	0360/407/02	mg/m ² /day	253.2	350	YES
12.03.15	GLV DM3 R1 2015	DM3	0360/407/03	mg/m ² /day	60.29	350	YES
29.05.15	GLV DM1 R2 2015	DM1	0360/414/01	mg/m ² /day	36.7	350	YES
29.05.15	GLV DM2 R2 2015	DM2	0360/414/02	mg/m ² /day	141.54	350	YES
29.05.15	GLV DM3 R2 2015	DM3	0360/414/03	mg/m ² /day	16.25	350	YES
02.09.15	GLV DM1 R3 2015	DM1	0360/418/02	mg/m ² /day	30.93	350	YES
02.09.15	GLV DM2 R3 2015	DM2	0360/418/03	mg/m ² /day	503.25	350	NO (incident no INCI008605)
02.09.15	GLV DM3 R3 2015	DM3	0360/418/04	mg/m ² /day	32.5	350	YES

PM10 MONITORING			
DATE	REPORTING PERIOD	REFERENCE CONC RANGE	PM10 (ug/m ³)
23.03.15	Bi annual	50 ug/m3 PM10	8.2
26.08.15	Bi annual	50 ug/m3 PM10	7.9

BIOFILTER GASES MONITORING														
Date	Test	ELV	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
10.05.15	Ammonia	50mg/m ³	ND	ND	ND	<5	ND	ND	ND	ND	ND	ND	ND	ND
10.05.15	Hydrogen Sulfide	5mg/m ³	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10.05.15	Total Mercaptans	5mg/m ³	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
18.09.15	Ammonia	50mg/m ³	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
18.09.15	Hydrogen Sulfide	5mg/m ³	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
18.09.15	Total Mercaptans	5mg/m ³	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

BIOFILTER BED MEDIA			
Date	Parameter	Units	Results
02.06.15	% Moisture Content	%	77.44
	Ammonia	mg/kg as N	393.19
	pH	pH Units	6.3
	**TVC @ 22°C	cfu/g	2200000
	**TVC @ 37°C	cfu/g	550000
23.11.15	% Moisture Content	%	73.82
	Ammonia	mg/kg as N	213.87
	pH	pH Units	7.2
	**TVC @ 22°C	cfu/g	8200000
	**TVC @ 37°C	cfu/g	3400000

COMPOST QUALITY - PATHOGENS				
McGill Ref:	Lab Certificate/ Report No.	Salmonella per 25g	Ecoli CFU/g	Complaint?
02-01-15 ABP9 Salmonella	MCGI-256060115	Not detected		YES
02-01-15 ABP9 Salmonella	MCGI-256060115	Not detected		YES
02-01-15 ABP9 Salmonella	MCGI-256060115	Not detected		YES
02-01-15 ABP9 Salmonella	MCGI-256060115	Not detected		YES
02-01-15 ABP9 Salmonella	MCGI-256060115	Not detected		YES
05-01-15 ABP7 Ecoli	MCGI-303140115		<10	YES
05-01-15 ABP7 Ecoli	MCGI-303140115		<10	YES
05-01-15 ABP7 Ecoli	MCGI-303140115		<10	YES
05-01-15 ABP7 Ecoli	MCGI-303140115		<10	YES
10-04-15 ABP9 Salmonella	MCGI-444150415	Not detected		YES
10-04-15 ABP9 Salmonella	MCGI-444150415	Not detected		YES
10-04-15 ABP9 Salmonella	MCGI-444150415	Not detected		YES
10-04-15 ABP9 Salmonella	MCGI-444150415	Not detected		YES
10-04-15 ABP9 Salmonella	MCGI-444150415	Not detected		YES
13-04-15 ABP8 Ecoli	MCGI-325270415		<10	YES
13-04-15 ABP8 Ecoli	MCGI-325270415		<10	YES
13-04-15 ABP8 Ecoli	MCGI-325270415		<10	YES
13-04-15 ABP8 Ecoli	MCGI-325270415		<10	YES
13-04-15 ABP8 Ecoli	MCGI-325270415		<10	YES
10-07-15 ABP 9 Salmonella	MCGI-217130715	Not detected		YES
10-07-15 ABP 9 Salmonella	MCGI-217130715	Not detected		YES
10-07-15 ABP 9 Salmonella	MCGI-217130715	Not detected		YES
10-07-15 ABP 9 Salmonella	MCGI-217130715	Not detected		YES
10-07-15 ABP 9 Salmonella	MCGI-217130715	Not detected		YES
13-07-15 ABP8 Ecoli	MCGI-396220715		<10	YES
13-07-15 ABP8 Ecoli	MCGI-396220715		<10	YES
13-07-15 ABP8 Ecoli	MCGI-396220715		<10	YES
13-07-15 ABP8 Ecoli	MCGI-396220715		<10	YES
01.10.15 ABP9 Salmonella	MCGI-256051015	Not detected		YES
01.10.15 ABP9 Salmonella	MCGI-256051015	Not detected		YES
01.10.15 ABP9 Salmonella	MCGI-256051015	Not detected		YES
01.10.15 ABP9 Salmonella	MCGI-256051015	Not detected		YES
01.10.15 ABP9 Salmonella	MCGI-256051015	Not detected		YES
19.10.15 ABP7 Ecoli	MCGI-425291015		<10	YES
19.10.15 ABP7 Ecoli	MCGI-425291015		<10	YES
19.10.15 ABP7 Ecoli	MCGI-425291015		<10	YES
19.10.15 ABP7 Ecoli	MCGI-425291015		<10	YES
19.10.15 ABP7 Ecoli	MCGI-425291015		<10	YES

COMPOST MATURITY MONITORING							
Lab ref	Report date	Sample ref	Sampling date	CLO AT4 (mg O ₂ /g TS in 4 days)	CLOR AT4 (mg O ₂ /g TS in 4 days)	Standard	Compliant
15-43488	17.02.15	CLO 29/1/15	29/01/2015	3.1		<10	YES
15-43488	17.02.15	CLOR 29/1/15	29/01/2015		3.2	<10	YES
15-43770	10.03.15	CLO 12/02/2015	12/02/2015	1.9		<10	YES
15-43857	16.03.15	CLOR 12/02/2015	12/02/2015		3.2	<10	YES
15-43857	16.03.15	CLO 26/02/2015	26/02/2015	2.3		<10	YES
15-44048	02.04.15	GLV CLO 11/3/15	11/03/2015	4.0		<10	YES
15-44126	02.04.15	CLOR 12- 03-2015	12/03/2015		4.0	<10	YES
15-44576	13.05.15	CLO 23-04- 15	23/04/2015	3.0		<10	YES
15-44577	13.05.15	CLOR 23- 04-15	23/04/2015		3.1	<10	YES
15-44882	15.06.15	CLO 14-05- 15	14/05/2015	3.4		<10	YES
15-45183	01.07.15	CLO 02-06- 15	02/06/2015	4.9		<10	YES
15-45183	01.07.15	CLOR 02- 06-15	02/06/2015		1.4	<10	YES
15-45537	09.07.15	CLO 29-06- 2015	29/06/2015	2.9		<10	YES
15-45707	06.08.15	CLO 13-07- 15	13/07/2015	5.4		<10	YES
15-45706	06.08.15	CLOR 13- 07-15	13/07/2015		1.7	<10	YES
15-46079	04.09.15	CLO 13-08- 15	13/08/2015	3.5		<10	YES
15-46079	04.09.15	CLOR 13- 08-15	13/08/2015		1.4	<10	YES
15-46330	06.11.15	CLO 02-09- 15	02/09/2015	2.7		<10	YES
15-46330	06.11.15	CLOR 02- 09-15	02/09/2015		2.5	<10	YES
15-46524	06.11.15	CLO 16-09- 15	16/09/2015	2.5		<10	YES

COMPOST MATURITY MONITORING							
Lab ref	Report date	Sample ref	Sampling date	CLO AT4 (mg O ₂ /g TS in 4 days)	CLOR AT4 (mg O ₂ /g TS in 4 days)	Standard	Compliant
15-46524	06.11.15	CLOR 16-09-15	16/09/2015		2.1	<10	YES
15-46771	17.11.15	CLO 06-10-15	06/10/2015	2.9		<10	YES
15-46771	17.11.15	CLOR 06-10-15	06/10/2015		2.5	<10	YES
15-47066	03.12.15	CLOR 29-10-15	29/10/2015		1.0	<10	YES
15-47211	17.12.15	CLO 10-11-15	10/11/2015	3.6		<10	YES
15-47211	17.12.15	CLOR 10-11-15	10/11/2015		0.7	<10	YES
15-47388	12.01.15	CLO 23-11-15	23/11/2015	2.1		<7	YES
15-47388	12.01.15	CLOR 23-11-15	23/11/2015		2.2	<7	YES
15-47576	19.01.16	CLO 07-12-16	07/12/2015	4.2		<7	YES
15-47576	19.01.16	CLOR 07-12-16	07/12/2015		1.4	<7	YES

COMPOST QUALITY MONITORING													
Sample	Lab Reference	% OM	Units	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	PCB	PAH	
GLV Q1 2015	0360/409 /01	60.	µg/	296.8	4296.	5488	9128		267	1871			
		96	kg	5	42	3.8	1.9	152	21	52			
			mg	0.296	4.296	54.8	91.2	0.15	26.	187.	0.4		
			/kg	85	42	838	819	2	721	152	08	0.005	
Normalised to 30% organic matter			mg		27.0	44.9	0.07	13.	92.1	0.2	<0.00		
			/kg	0.146	2.114	10	22	5	150	02	01	2	
Compliant (against stabilised biowaste standards)?				YES	YES	YES	YES	YES	YES	YES	YES	YES	
GLV Q2 2015		54.	µg/	623.5	4735.	8534	1453	155.	246	2585			
		42	kg	44	71	1.4	35	34	35	87			
			mg	0.623	4.735	85.3	145.	0.15	24.	258.	<0.		
			/kg	544	71	414	335	534	635	587	005	0.366	
Normalised to 30% organic matter			mg		47.0	80.1	0.08	13.	142.	<0.			
			/kg	0.344	2.611	46	19	6	581	551	003	0.202	
Compliant (against stabilised biowaste standards)?				YES	YES	YES	YES	YES	YES	YES	YES	YES	
GLV Q3 2015	0360/418 /01	41.	µg/	424.6	7634.	9938	7960	85.1	161	2262			
		51	kg	18	32	.8	9.6	404	25	95			
			mg				79.6		16.	226.	<0.		
			/kg	0.42	7.63	9.94	1	0.09	13	30	005	0.126	
Normalised to 30% organic matter			mg			57.5		11.	163.	<0.	0.091		
			/kg	0.31	5.52	7.18	4	0.06	65	55	003	062	
Compliant (against stabilised biowaste standards)?				YES	YES	YES	YES	YES	YES	YES	YES	YES	
GLV Q4 2015	0360/418 /01	83.	µg/		3149.	4803	4318	79.9	315	1045			
		37	kg	<10	79	1	6	5	1.9	62			
			mg				48.0	43.1		3.1	104.	<0.	
			/kg	<0.01	3.15	3	9	0.08	5	56	005	0.948	
Normalised to 30% organic matter			mg			17.2	15.5		1.1	37.6	0.0		
			/kg	0.00	1.13	8	4	0.03	3	3	0	0.34	
Compliant (against stabilised biowaste standards)?				YES	YES	YES	YES	YES	YES	YES	YES	YES	

GROUNDWATER MONITORING						
Parameter	Analytical Technique	Units	GW1	GW2	GW3	GW4
Depth			2.50m	1.98m	1.5m	Tap
Ammonium (NH ₄)	Colorimetry	mg/l	<1.00	<1.00	<1.00	<1.00
Chloride	Colorimetry	mg/l	13.45	14.28	13.41	11.19
Coliforms (Faecal)	Filtration/Incubation @ 44C/24H	cfu/100ml	0	0	0	0
Coliforms (Total)	Filtration/Incubation	cfu/100ml	20	20	50	0
Electrical Conductivity	Electrometry	uscm - 1@20C	264	273	193.7	157.2
pH	Electrometry	pH units	6.3	6.5	6.4	5.8

SURFACE WATER MONITORING			
Parameter	Analytical Technique	Units	Results
Ammonia	Colorimetry	mg/l	1.68
BOD	Electrometry	mg/l	<2
Coliforms (Faecal)	Filtration/Incubation @ 44C/24H	cfu/100ml	5
Coliforms (Total)	Filtration/Incubation	cfu/100ml	680
Electrical Conductivity	Electrometry	uscm -1@20C	70.7
pH	Electrometry	pH units	6.6
Solids	Filtration/drying @140C	mg/l	12

INCOMING SLUDGE MONITORING										
Sample Ref	Dry Matter	Cadmium	Chromium	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Zinc
	%	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Q1 2015 Customer A	<0.1%	<0.05	<0.28	13.75	1.115	<0.04	<5	<2.29	<2.12	32.12
Q2 2015 Customer A	21.38	235.67	22331.9	9545 1	2900 6.2	40.91	2645.6	1541 1.3	1412.9 9	3559 71

WASTEWATER MONITORING		
Parameter	Units	Results
BOD	mg/l	160
pH	pH units	7.9
Solids (Total Suspended)	mg/l	3070