

Attachment E.1 – Emissions to Atmosphere

Emissions to atmosphere from the site will occur from the emission points identified below.

(a) Composting emissions

None

(b) Particulates – waste storage/treatment/handling

A2-1	(shredder exhaust	–	existing treatment plant)
A2-3	(shredder exhaust	–	proposed treatment plant)
A2-6	(rotary dryer exhaust	–	proposed recovery plant)

(c) Landfill Gas Emissions

None

(d) Landfill Leachate Emissions

None

(e) Infectious Organisms / Pathogens

A2-1	(shredder exhaust	–	existing treatment plant)
A2-2	(condenser exhaust	–	existing and proposed treatment plant)
A2-3	(shredder exhaust	–	proposed treatment plant)

(f) Thermal Oxidiser Emissions

None

(g) Other Emissions

A2-1	(shredder exhaust	–	existing treatment plant)
A2-2	(condenser exhaust	–	existing treatment plant)
A2-3	(shredder exhaust	–	proposed treatment plant)
A2-4	(gas fired hot steam boiler exhaust – replacement for existing electrical boiler)		
A2-5	(bin wash exhaust	–	existing)
A2-6	(rotary drier	–	proposed recovery plant)

Table E.1(ii) Main Emissions to Atmosphere

Emission Point Ref. No.:	A2 – 1
Source of Emission:	STI Model 2000 – shredder exhaust (existing treatment plant)
Location:	Roofline at side of building 430 Beech Road
Grid ref. (12 digit, 6E, 6N)	309171, 231396
Vent Details: Diameter:	100 mm
Height above Ground (m):	7 m
Date of commencement:	Subject to existing licence 55-1 (release point A2)

Characteristics of Emission:

(i) Volume to be emitted:			
Average/day	2400 m ³ /d	Maximum/day	11,200 m ³ /d
Maximum rate/hour	700 m ³ /h	Min efflux velocity	0.02 m.sec ⁻¹
(ii) Other factors			
Temperature	ambient °C (max)	ambient °C (min)	ambient °C (avg)
For Combustion Sources			
Volume terms expressed as: Not a combustion source			

(iii) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (start-up / shutdown to be included):

Periods of Emissions (avg)	60 min/hr	24 hr/day	330 day/yr
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Table E.1(ii) Main Emissions to Atmosphere

Emission Point Ref. No.:	A2 – 2
Source of Emission:	STI Model 2000 – condenser exhaust (existing and proposed treatment plant)
Location:	Roofline at rear of building 430 Beech Road
Grid ref. (12 digit, 6E, 6N)	309170, 231396
Vent Details: Diameter:	100 mm
Height above Ground (m):	6 m
Date of commencement:	Subject to existing licence 55-1 (release point A1)

Characteristics of Emission:

(i) Volume to be emitted:			
Average/day	2400 m ³ /d	Maximum/day	8,000 m ³ /d
Maximum rate/hour	500 m ³ /h	Min efflux velocity	0.02 m.sec ⁻¹
(ii) Other factors			
Temperature	60 °C (max)	ambient °C (min)	30 - 40 °C (avg)
For Combustion Sources			
Volume terms expressed as: Not a combustion source			

(iv) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (start-up / shutdown to be included):

Periods of Emissions (avg)	60 min/hr	24 hr/day	330 day/yr
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Table E.1(ii) Main Emissions to Atmosphere

Emission Point Ref. No.:	A2 – 3
Source of Emission:	STI Model 2000 – shedder exhaust (proposed treatment plant)
Location:	Roofline at side of building 430 Beech Road
Grid ref. (12 digit, 6E, 6N)	309165, 231 385
Vent Details: Diameter:	100 mm
Height above Ground (m):	7 mm
Date of commencement:	2005 – exact date to be advised

Characteristics of Emission:

(i) Volume to be emitted:			
Average/day	2400 m ³ /d	Maximum/day	11,200 m ³ /d
Maximum rate/hour	700 m ³ /h	Min efflux velocity	0.02 m.sec ⁻¹
(ii) Other factors			
Temperature	ambient °C (max)	ambient °C (min)	ambient °C (avg)
For Combustion Sources			
Volume terms expressed as: Not a combustion source			

- (v) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (start-up / shutdown to be included):

Periods of Emissions (avg)	60 min/hr	24 hr/day	330 day/yr
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Table E.1(ii) Main Emissions to Atmosphere

Emission Point Ref. No.:	A2 – 4
Source of Emission:	Natural gas fired packaged steam boiler
Location:	Roofline at rear of building 430 Beech Road
Grid ref. (12 digit, 6E, 6N)	TBA
Vent Details: Diameter:	TBA
Height above Ground (m):	TBA
Date of commencement:	2005 – exact date to be advised

Characteristics of Emission:

(i) Volume to be emitted:			
Average/day	TBA m ³ /d	Maximum/day	TBA m ³ /d
Maximum rate/hour	TBA m ³ /h	Min efflux velocity	TBA m.sec ⁻¹
(ii) Other factors			
Temperature	TBA °C (max)	TBA °C (min)	TBA °C (avg)
For Combustion Sources			
Volume terms expressed as: Not a combustion source			

(vi) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (start-up / shutdown to be included):

Periods of Emissions (avg)	60 min/hr	24 hr/day	330 day/yr
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Table E.1(ii) Main Emissions to Atmosphere

Emission Point Ref. No.:	A2 – 5
Source of Emission:	Bin Washer Exhaust
Location:	Roofline rear of building 430 Beech Road
Grid ref. (12 digit, 6E, 6N)	309182, 231387
Vent Details: Diameter:	400 mm
Height above Ground (m):	6 m
Date of commencement:	Subject to Licence 55-2

Characteristics of Emission:

(i) Volume to be emitted:			
Average/day	24000 m ³ /d	Maximum/day	36000 m ³ /d
Maximum rate/hour	1500 m ³ /h	Min efflux velocity	0.3 m.sec ⁻¹
(ii) Other factors			
Temperature	60 °C (max)	ambient °C (min)	40 - 50 °C (avg)
For Combustion Sources			
Volume terms expressed as: Not a combustion source			

(vii) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (start-up / shutdown to be included):

Periods of Emissions (avg)	60 min/hr	24 hr/day	330 day/yr
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Table E.1(ii) Main Emissions to Atmosphere

Emission Point Ref. No.:	A2 – 6
Source of Emission:	Plastics Recovery Plant – Rotary Dryer Exhaust
Location:	Roofline of building 420 Beech Road
Grid ref. (12 digit, 6E, 6N)	TBA
Vent Details: Diameter:	TBA
Height above Ground (m):	TBA
Date of commencement:	2005 (exact date to be advised)

Characteristics of Emission:

(i) Volume to be emitted:			
Average/day	TBA m ³ /d	Maximum/day	TBA m ³ /d
Maximum rate/hour	TBA m ³ /h	Min efflux velocity	TBA m.sec ⁻¹
(ii) Other factors			
Temperature	TBA °C (max)	TBA °C (min)	TBA °C (avg)
For Combustion Sources			
Volume terms expressed as: Actual (stack conditions, wet)			

(viii) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (start-up / shutdown to be included):

Periods of Emissions (avg)	60 min/hr	24 hr/day	330 day/yr
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Table E.1 (iii): Main Emissions to Atmosphere – Chemical Characteristics of Emissions**Emissions Point Reference Number: A2-1**

Parameter	Prior to treatment				Brief description of treatment	As discharged					
	Mg/Nm ³		Kg/h			mg/Nm ³		Kg/h		Kg/yr	
	Avg	Max	Avg	Max		Avg	Max	Avg	Max	Avg	Max
particulate	-	-	-	-	HEPA Filter	-	-	-	-	-	-
Organisms (as TVC) TVC = Total Viable	-	-	-	-	HEPA Filter	500 cfu	2000 cfu	-	-	-	-
VOC (as C)	-	-	-	-	HEPA Filter	< 50	150	0.005	0.1	50	875

Table E.1 (iii): Main Emissions to Atmosphere – Chemical Characteristics of Emissions**Emissions Point Reference Number: A2-2**

Parameter	Prior to treatment				Brief description of treatment	As discharged					
	Mg/Nm ³		Kg/h			mg/Nm ³		Kg/h		Kg/yr	
	Avg	Max	Avg	Max		Avg	Max	Avg	Max	Avg	Max
Organisms (as TVC) TVC = total viable counts	-	-	-	-	Condenser Coalescing Vessel and Carbon Filter	250 cfu	2000 cfu	-	-	-	-
VOC (as C)	-	-	-	-	Condenser Coalescing Vessel and Carbon Filter	< 500	1000	0.01	0.1	70	875

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Table E.1 (iii): Main Emissions to Atmosphere – Chemical Characteristics of Emissions**Emissions Point Reference Number: A2-3**

Parameter	Prior to treatment				Brief description of treatment	As discharged					
	Mg/Nm ³		Kg/h			mg/Nm ³		Kg/h		Kg/yr	
	Avg	Max	Avg	Max		Avg	Max	Avg	Max	Avg	Max
particulate	-	-	-	-	HEPA Filter	-	-	-	-	-	-
Organisms (as TVC) TVC = Total Viable	-	-	-	-	HEPA Filter	500 cfu	2000 cfu	-	-	-	-
VOC (as C)	-	-	-	-	HEPA Filter	< 50	150	0.005	0.1	50	875

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Table E.1 (III): Main Emissions to Atmosphere – Chemical Characteristics of Emissions

Emissions Point Reference Number: A2-4

Parameter	Prior to treatment				Brief description of treatment	As discharged					
	Mg/Nm ³		Kg/h			mg/Nm ³		Kg/h		Kg/yr	
	Avg	Max	Avg	Max		Avg	Max	Avg	Max	Avg	Max
Oxides of Nitrogen (as NO ₂)	-	-	-	-	None	TBA	TBA	TBA	TBA	TBA	TBA
Carbon Monoxide (CO)	-	-	-	-	None	TBA	TBA	TBA	TBA	TBA	TBA

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Table E.1 (iii): Main Emissions to Atmosphere – Chemical Characteristics of Emissions

Emissions Point Reference Number: A2-5

Parameter	Prior to treatment				Brief description of treatment	As discharged					
	Mg/Nm ³		Kg/h			mg/Nm ³		Kg/h		Kg/yr	
	Avg	Max	Avg	Max		Avg	Max	Avg	Max	Avg	Max
Organisms (as TVC) TVC = Total Viable	-	-	-	-	HEPA Filter	50 cfu	2000 cfu	-	-	-	-
VOC (as C)	-	-	-	-	HEPA Filter	< 5	50	0.001	0.1	10	875

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Table E.1 (iii): Main Emissions to Atmosphere – Chemical Characteristics of Emissions

Emissions Point Reference Number: A2-6

Parameter	Prior to treatment				Brief description of treatment	As discharged					
	Mg/Nm ³		Kg/h			mg/Nm ³		Kg/h		Kg/yr	
	Avg	Max	Avg	Max		Avg	Max	Avg	Max	Avg	Max
particulate	-	-	-	-	Reverse jet pulse filter	TBA	TBA	TBA	TBA	TBA	TBA

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Figure E.1 F1 – Site Plan showing location of emissions points to air

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EXISTING SITE PLAN scale 1:200

Grid Reference	Northing	Easting	Details
A2-1	231396	309171	SHREDDER EXHAUST No. 1
A2-2	231396	309170	STEAM EXTRACT No. 1 and 2
A2-3	231389	309182	SHREDDER EXHAUST No.2
A2-4	TBA	TBA	GAS BOILER EXHAUST
A2-5	231387	309181	BIN WASHER EXHAUST
A2-6	TBA	TBA	ROTARY DRYER EXHAUST

309200

Document E.1 D1 – Emission test report (existing treatment plant)

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CERTIFICATE OF ANALYSIS

TO: Sterile Technologies Ireland
 ATTN: Joe Lynch
 DATE: 13th January 2005
 MATERIAL: Total VOC Analysis
 SAMPLE DATE: 7th December 2004
 TMS REF #: 04127A Rev: 0

Air Jly - See 04.

Sample Location	Test Parameter	Test Result	EPA Waste Licence Limits	Units
A1	Total Organics (as C)	70.12	None specified	mg/Nm ³
	Mass Flow	<0.00002	0.1	Kg/hr
	Efflux Volume	184.4	500	Nm ³ /hr
A2	Total Organics (as C)	7.60	None specified	mg/Nm ³
	Mass Flow	0.004	0.1	Kg/hr
	Efflux Volume	463.64	700	Nm ³ /hr
A5	Total Organics (as C)	18.48	None specified	mg/Nm ³
	Mass Flow	0.015	None specified	Kg/hr
	Efflux Volume	805.75	None specified	Nm ³ /hr


Remarks:

- Analytical results reflect the quality of the sample at the time of analysis only.
- All parameters comply with Waste licence limits.

Signed: *Jonathan Daly* Certificate checked by: *David Burke*
 Jonathan Daly David Burke



061229327



Mercury Analytical Ltd.

Accredited to ISO 9001:2000

SGS Certificate No. Q11182

Trace metal, compositional, bacteriological & environmental analysis.

Raheen Industrial Estate,
Limerick, Ireland.

Phone: (061) 229055

Fax: (061) 229327

Sterile Technologies Irl. Ltd.,
430 Beech Road,
Western Industrial Estate,
Naas Road,
Dublin 12.

Air RT - Dec 04

Attention: Enda Maxwell

2/12/04

CERTIFICATE OF ANALYSIS

Material	Biotest Samples			
Date Rec.	19/11/04			
Your Ref.	Lab. No.	TVC (cfu/m ³)	Yeasts (cfu/m ³)	Moulds (cfu/m ³)
A1 1615-1619	04-4035-1			
A1 1610-1614	04-4035-2		<6	13
A2 1440-1444	04-4035-3	19		
A2 1430-1434	04-4035-4		<6	19
A5 1455-1459	04-4035-5	406		
A5 1450-1554	04-4035-6		<6	31

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Methods: TVC incubated for 3 days @ 30°C
Yeasts and Moulds incubated for 4 days @ 25°C

Comment: All results are within licence limits (<2000 cfu/m³)

P.P. Hugh & Donnell
P.C.D. Cazalet

Cert. checked: *EMER PIERCE*

CERTIFICATE OF ANALYSIS

TO: Sterile Technologies Ireland
 ATTN: Joe Lynch
 DATE: 27th August 2004
 MATERIAL: Total VOC Analysis
 SAMPLE DATE: 18th June 2004
 TMS REF #: 04073A Rev: 0

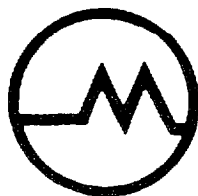
Sample Location	Test Parameter	Test Result	EPA Waste Licence Limits	Units
A1	Total Organics (as C)	>302.5	None specified	mg/Nm ³
	Mass Flow	>0.04	0.1	Kg/hr
	Efflux Volume	133.5	500	Nm ³ /hr
A2	Total Organics (as C)	15.3	None specified	mg/Nm ³
	Mass Flow	0.005	0.1	Kg/hr
	Efflux Volume	304.7	700	Nm ³ /hr
A5	Total Organics (as C)	<1.5	None specified	mg/Nm ³
	Mass Flow	<0.001	None specified	Kg/hr
	Efflux Volume	732.5	None specified	Nm ³ /hr

Remarks:

- Analytical results reflect the quality of the sample at the time of analysis only.
- A portion of analyte was found on the back section of the sample tube at A1 – therefore the actual concentration may be somewhat greater than that reported above.
- All parameters comply with Waste licence limits.

Signed: 
Jonathan Daly

Certificate checked by: 
David Burke



Mercury Analytical Ltd.

Accredited to ISO 9001:2000

SGS Certificate No. Q11182

Trace metal, compositional, bacteriological & environmental analysis.

Raheen Industrial Estate,
Limerick, Ireland.

Phone: (061) 229055

Fax: (061) 229327

Sterile Technologies Irl. Ltd.,
430 Beech Road,
Western Industrial Estate,
Naas Road,
Dublin 12.

Attention: Enda Maxwell

2/7/04

REVISED CERTIFICATE OF ANALYSIS

Material	Biotest Samples			
Date Rec.	25/6/04			
Your Ref.	Lab. No.	TVC (cfu/m ³)	Yeasts (cfu/m ³)	Moulds (cfu/m ³)
BK	04-2138-1	<6		
A1 1556-1600	04-2138-2	56		
A2 1530-1534	04-2138-3	250		
A5 1420-1424	04-2138-4	231		
BK	04-2138-5		<6	<6
A1 1601-1605	04-2138-6		<6	24
A2 1535-1539	04-2138-7		<6	18
A5 1425-1429	04-2138-8		<6	210

Methods: TVC incubated for 3 days @ 30°C

Yeasts and Moulds incubated for 4 days @ 25°C

Comment: All results are within licence limits (<2000 cfu/m³)

P. P. Hugh O'Donnell
P.C.D. Cazalet

Cert. checked: Enda Maxwell

Attachment E.2 – Emissions to Surface Waters

There are no emissions from the facility to surface water drains except for rainwater from roof drains, car parking and vehicle movement areas.

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Attachment E.3 – Emissions to Sewer

Table E.3(i): Emissions to Sewer

Emission Point: SE 1

Emission Point Ref. No.	SE 1
Location of connection to sewer	Rear of Building Unit 430
Grid Ref. (10 digit, 5E, 5N):	309184, 231376
Name of sewerage undertaker:	South Dublin County Council

Emission Details:

(i) Volume to be emitted			
Normal/day	16m3	Maximum/day	20m3
Maximum rate/hour	2m3		

(ii) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (*start-up/shutdown to be included*):

Periods of emission (avg)	60min/hr	24hr/day	330day/yr
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Table E.3(i): Emissions to Sewer**Emission Point: SE 2**

Emission Point Ref. No.	SE 2
Location of connection to sewer	Rear of Building Unit 420
Grid Ref. (10 digit, 5E, 5N):	309156, 231415
Name of sewerage undertaker:	South Dublin County Council

Emission Details:

(i) Volume to be emitted			
Normal/day	16m ³	Maximum/day	20m ³
Maximum rate/hour	2m ³		

(iii) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (*start-up/shutdown to be included*):

Periods of emission (avg)	60min/hr	24hr/day	330day/yr
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TABLE E.3 (ii): EMISSIONS TO SEWER - Characteristics of the emission

Emission point reference number: SE 1

Parameter	Prior to treatment				As discharged				% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/ day	kg/ year	Max. hourly average(mg/1)	Max. daily average (mg/1)	kg/ day	kg/ year	
BOD 5	1000	800	31.99	10,000	1000	800	31.99	10,000	No Treatment
COD	3000	2400	96	32,000	3000	2400	96	32,000	
Suspended Solids	500	400	15.99	5,000	500	400	15.99	5,000	
Detergents as methylene blue active Substances (MBAS)	100	100	3.99	1,000	100	100	3.99	1,000	
Fats Oil and Grease	100	100	3.99	1,000	100	100	3.99	1,000	
pH	6 – 10	-	-	-	6 – 10	-	-	-	
Temperature	42 C	-	-	-	42 C	-	-	-	

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TABLE E.3 (ii): EMISSIONS TO SEWER - Characteristics of the emission (1 table per emission point)**Emission point reference number:** SE 2

Parameter	Prior to treatment				As discharged				% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/ day	kg/ year	Max. hourly average(mg/l)	Max. daily average (mg/l)	kg/ day	kg/ year	
BOD 5	1000	800	21.3	7,000	1000	800	21.3	7,000	No Treatment
COD	3000	2400	63.9	21,000	3000	2400	63.9	21,000	
Suspended Solids	500	400	10.6	3,500	500	400	10.6	3,500	
Detergents as methylene blue active Substances (MBAS)	100	100	2.7	891	100	100	2.7	891	
Fats Oil and Grease	100	100	2.7	891	100	100	2.7	891	
pH	6 – 10	-	-	-	6 – 10	-	-	-	
Temperature	42 C	-	-	-	42 C	-	-	-	

Attachment E.4 – Emissions to Groundwater

There are no emissions from the facility to ground water.

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Attachment E.5 – Noise Emissions

Each year since commencement of operations at 430 Beech Road, STI has engaged the services of 'TMS Analytical' to conduct a survey of noise levels at the boundary of the site in accordance with the requirements of Waste Licence 55-1. The noise measurement points are located at the southern boundary of the site where it adjoins Unit 520 (noise measurement point B1) and at the northern boundary of site on the boundary of the site where Unit 430 adjoins Unit 420 (noise reference point B2). The most recent noise monitoring exercise was undertaken on 18 June 2004 (see attached report document E.5 D1). The report demonstrates that at both locations the noise resulting from the traffic on the Naas Road dominates any noises generated by the plant. Therefore as the proposed changes to the site will not result in the introduction of any equipment which generates any more noise than that already present on the site and the noise generated by the site is insignificant when compared with the surrounding area it is STI's opinion that noise emissions from the extended site will be insignificant.

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Document E.5 D1 – Noise Report

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Title of Report: Environmental Noise Survey
Client: Sterile Technologies Ireland Ltd.
Attention: Mr. Joe Lynch
Date: 27th August 2004.
TMS Ref. No: 04073A Rev. 1

Written by: 
Jonathan Daly

Approved by: 
David Burke

IoA Accredited Noise Assessor

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1.0 INTRODUCTION

TMS Analytical Ltd. was commissioned by Sterile Technologies Ireland Ltd. to carry out an environmental noise survey at its plant in the Western Industrial Estate, Dublin, in order to determine the influence, if any, that it has on the surrounding environment. The noise survey is being undertaken to measure compliance with Waste Licence requirements (Reg No. 55-1).

2.0 INSTRUMENTATION

Measurements were taken using the following equipment:

- Precision integrating sound level meter
Briel & Kjaer, Type 2260.
- Microphone
Briel & Kjaer, Type 4189.
- Acoustical calibrator
Briel & Kjaer, Type 4231.

Calibration certificates for this instrumentation are supplied in Appendix One.

4.0 MEASUREMENT RESULTS

4.1 Daytime Noise Results

Location	Appendix Four Ref #	L _{Aeq} dB(A)	L ₁₀ dB(A)	L ₉₀ dB(A)	Comments
B1	0008.S3A	60	62	53	Located to the front of the site
B2	0009.S3A	61	63	58	At the rear of the site

Table 4.1 Daytime boundary measurement results for STI Ltd.

Notes:

- *Figures in red indicate the increased valued due to the penalty imposed for the presence of a tonal component.*
- *BATNEEC Guidance Limit for noise sensitive location is 55dB(A) for daytime.*

STI's location in the centre of a large industrial estate leaves it susceptible to constant external noise. The main contributor to noise at monitoring location B1 is the very heavy traffic which streams through this region on a continuous basis. The site is within 200m of the Naas road, which is one of the main thoroughfares into the city.

On site activity contributing to noise levels (at B1) comprised the arrival and departure of a truck. Activities within the plant did not noticeably contribute to the recorded noise level – which was dominated by passing traffic. No tonal component was present in this measurement.

Measurement location B2 is located at the rear of the plant close to the rear entrance and waste bagging machine. A steady 'whirring' sound was audible from this machine, in addition to a contribution from the steady flow of waste down the metal 'hopper' chute of the machine. The bin washing machine located inside the rear door of the plant was also audible. Noise from external vehicular traffic, and intermittent on-site forklift use, also contributed to the noise level at this location.

On inspection of the 1/3 octave band frequency analysis (Appendix four, 0009.S3A) a tonal component was found to be present at 315 Hz. In accordance with ISO 1996, 5dB has been added to the L_{Aeq} measurement to allow for this tonal component. This value is indicated in red in table 4.1.

4.2 Nighttime Noise Results

Location	Appendix Four Ref #	L_{Aeq} dB(A)	L_{10} dB(A)	L_{90} dB(A)	Comments
B1	0010.S3A	55	56	53	
B2	0011.S3A	62	63	51	

Table 4.2 Nighttime boundary measurement results for STI Ltd.

Notes:

- Figures in red indicate the increased value due to the penalty imposed for the presence of a tonal component.
- BATNEEC Guidance Limit for noise sensitive locations is 45 dB(A) at nighttime.

Traffic on the Naas road was the main contributor to noise at this time. The STI plant was very quiet for the duration of the measurement taken at B1 – giving a clear indication of the impact of road traffic noise at this monitoring location. No tonal component was present in this measurement.

The measurement taken at B2 was similar to the daytime measurement at this location, with the proximity to the waste bagging operation accounting for its impact on the recorded values. A tonal component at 315Hz was again found with this measurement, and the required adjustment has been made to the value – see table 4.2.

5.0 DISCUSSION

There are no limits specified in the Waste Licence Reg No. 55-1. BATNEEC limits have therefore been quoted. BATNEEC limits are only applicable to noise sensitive locations, and since STI Ltd. has measurements at the boundary only, these limits are only applied as a guide. BATNEEC limits have been exceeded at all locations, for both daytime and night-time measurements.

Measurements at B1 are clearly dominated by passing traffic on the Naas Road.

The similarity of day- and nighttime measurements at B2 highlights the fact that the waste bagging machine, which is in very close proximity to the monitoring location, is the primary source of noise. However, since STI is located in a non-residential area it is unlikely that the recorded noise levels constitute a significant impact. This is highlighted by the fact that there are no noise complaints on record with STI to-date.

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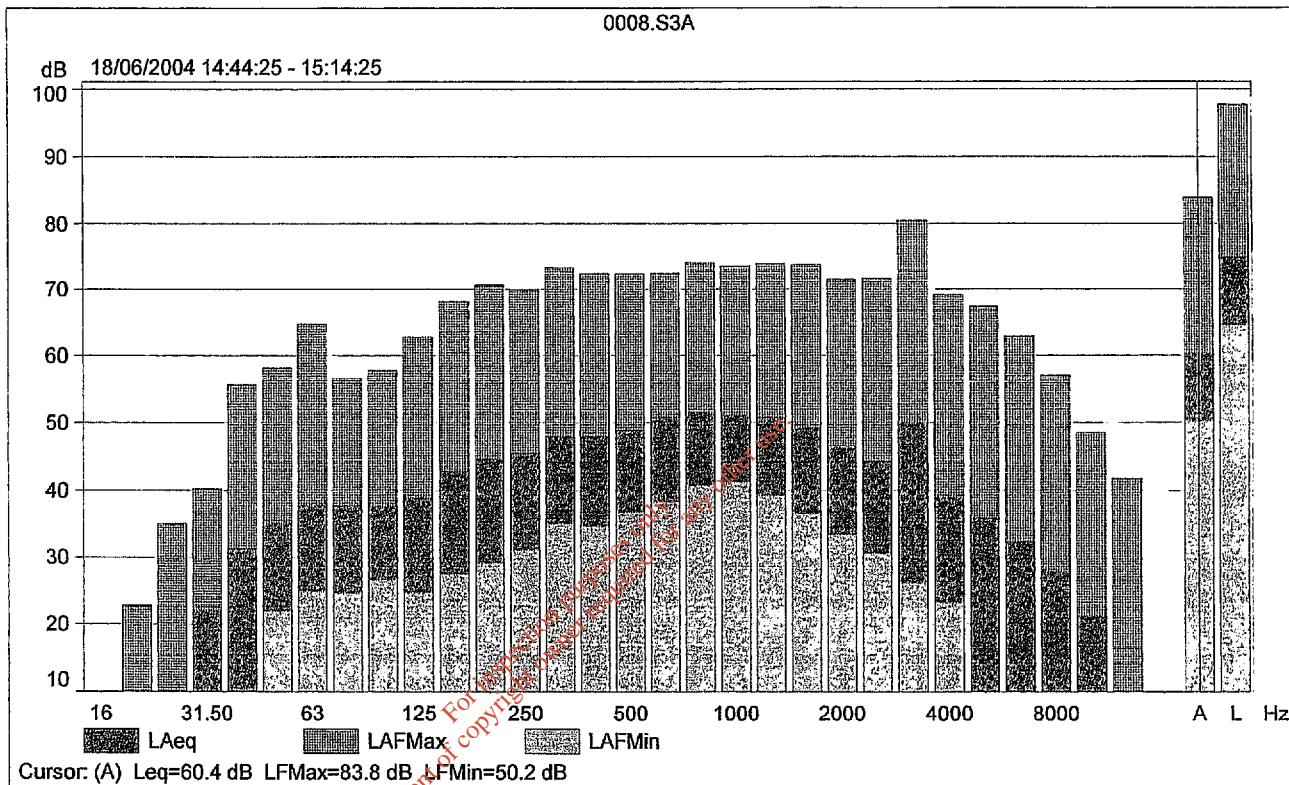
APPENDIX FOUR

DATA OUTPUT

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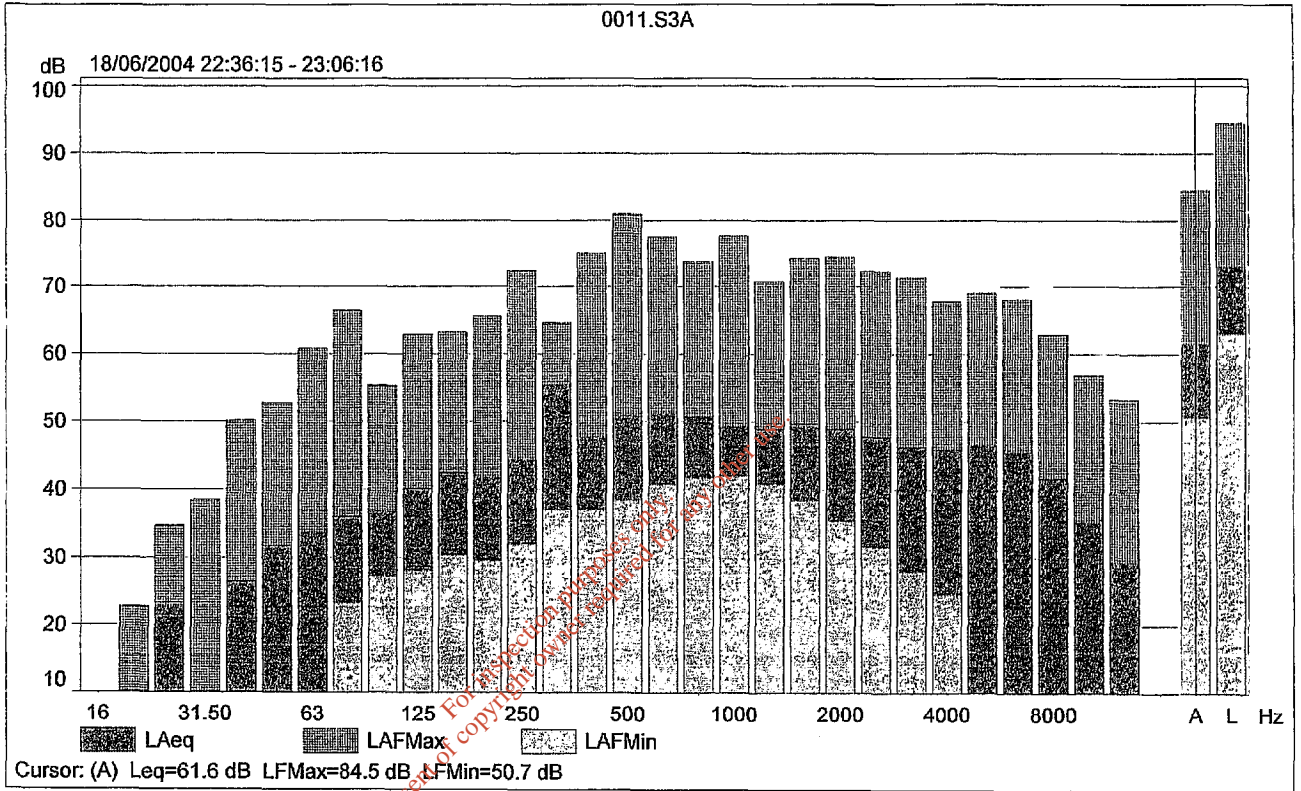
0008.S3A

	Start time	Elapsed time	LAeq [dB]	LAF10 [dB]	LAF90 [dB]	LAFMin [dB]	LAFMax [dB]
Value			60.4	62.0	52.9	50.2	83.8
Time	14:44:25	0:30:00					
Date	18/06/2004						



0011.S3A

	Start time	Elapsed time	LAeq [dB]	LAF10 [dB]	LAF90 [dB]	LAFMin [dB]	LAFMax [dB]
Value			61.6	63.2	58.3	50.7	84.5
Time	22:36:15	0:30:01					
Date	18/06/2004						



APPENDIX ONE
CALIBRATION CERTIFICATES

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CERTIFICATE OF CALIBRATION

ISSUED BY **Bruel & Kjaer**
DATE OF ISSUE **18 AUGUST 2003**
CERTIFICATE NUMBER **11964**



0174

Bruel & Kjaer UK Ltd.



Bedford House · Rutherford Close · Stevenage · Hertfordshire · SG1 2ND
Telephone: 01438 739100 · Fax: 01438 739199
E-Mail: service@bkjgb.co.uk

PAGE 1 OF 2 PAGES

APPROVED SIGNATORY

Name: **S. TILAKUN**

Signature:

SOUND LEVEL METER VERIFICATION IN ACCORDANCE WITH THE PROCEDURE GIVEN IN BS7580:Part 1:1997

CLIENT: **TMS ANALYTICAL LTD**
12 BARRINGTON STREET
LIMERICK
IRELAND

DATE EQUIPMENT RECEIVED: **13 AUGUST 2003**

CALIBRATION DATE: **18 AUGUST 2003**

BRUEL & KJAER REF. NO.: **21818**

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Sound Level Meter, Bruel & Kjaer Type: **2260** Serial No.: **2217549**

Weight, M. J. L. Bruel & Kjaer Type: **BZ7201**

Microphone, Bruel & Kjaer Type: **4189** Serial No.: **217475**

Microphone, Bruel & Kjaer Type: **4231** Serial No.: **1883708**

Wind Shield, Bruel & Kjaer Type: **UC0210**

Reference Sound Pressure Level, Type: **11964** Date: **15 08 2003**

CERTIFICATE OF CALIBRATION

CERTIFICATE NUMBER

11964

UKAS ACCREDITED CALIBRATION LABORATORY No.0174

PAGE 2 OF 2 PAGES

Internally generated noise levels (mean of three observations) were found to be:

A Weighted	13.6	dB
C Weighted	14.9	dB
Linear	20.5	dB

The indication of the sound level meter in response to the associated sound calibrator was:

Sound Pressure Level 94.1

This is the sound pressure level value to be used when calibrating this sound level meter with the associated calibrator. If the sound calibrator is a Pistonphone then this value must be corrected for ambient atmospheric pressure as per the manufacturer's instruction for use of a pistonphone.

THE SOUND LEVEL METER WAS VERIFIED ACCORDING TO THE PROCEDURE GIVEN IN BS7580: Part 1:1997.

For integrating sound level meters only, a more demanding procedure for the pulse range test than given in BS7580: part 1:1997 was performed by excluding the low level continuous signal.

STATEMENT OF RESULT:-

THE SOUND LEVEL METER CONFORMS TO BS7580:PART 1:1997 VERIFYING CONFORMANCE TO, BSEN60651:1994 TYPE 1, BSEN6064:1994 TYPE 1 AND BS3539:1986

The calibration certificate was prepared in accordance with the requirements of BS7580: Part 1:1997. The calibration certificate was prepared in accordance with the requirements of BS7580: Part 1:1997. The calibration certificate was prepared in accordance with the requirements of BS7580: Part 1:1997. The calibration certificate was prepared in accordance with the requirements of BS7580: Part 1:1997.

The following standards are referred to in this certificate:

BS7580: Part 1:1997 The Method of Test for Sound Level Meters

BS1991: 1997-4-1 formerly BS5591: 1997-4-1 Specification for Sound Level Meters

BS1991: 1997-4-1 formerly BS5591: 1997-4-1 Specification for Integrating-Averaging Sound Level Meters

BS3539: 1986 Sound Level Meters for the Measurement of Noise Emitted by Motor Vehicles

CERTIFICATE OF CALIBRATION

Issued by: Brüel & Kjær UK Ltd.

Date of Issue: 15 AUG 2003 Certificate Number: 11963



Brüel & Kjær 

Bedford House, Rutherford Close, Stevenage,
Hertfordshire. SG1 2ND
Telephone : 01438 739100 Fax : 01438 739199
E-Mail : service@bkgb.co.uk

Page 1 of 2 pages

Approved signatory

Name: S. TILAHUN

Signature: 

CALIBRATION OF CALIBRATOR TYPE 4231

Client:

TMS ANALYTICAL LTD
12 BARRINGTON STREET
LIMERICK
IRELAND

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Calibrator Type 4231

1883708

Client Inventory Number

Manufacturer

Brüel & Kjær

Equipment Reference

13 AUG 2003

15 AUG 2003

Equipment Serial

1-21818901

Equipment Description

Notes:

Calibration of Brüel & Kjær Type 4231

Standard calibration of the Brüel & Kjær 4231 was carried out in a traceable laboratory grade
environment. The standard used was a Class 1, 100 Hz, 0.1 mm/s² sine wave. The 100 Hz
component was measured using a Brüel & Kjær 8001 microphone. The results are given in
table 1. The results are in accordance with the requirements of the calibration order.

The calibration of the Brüel & Kjær 4231 was carried out using the same microphone and
standard as used in the calibration of the Brüel & Kjær 4231. The results are given in
table 2. The results are in accordance with the requirements of the calibration order.

CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory Number 0174

Certificate Number

11963

Page 2 of 2 pages

Appropriate corrections for atmospheric pressure during calibration and for measurement system frequency and level response were taken into account.

Sound pressure level results given in the certificate are the mean of 5 measurements.

Calibration results apply at ambient conditions during the process of calibration, which are given in the certificate.

CALIBRATION RESULTS

Coupler Configuration	Microphone Type (without grid)	Output Level dB re 20µPa At ambient Test conditions	-20dB Level Step dB	Frequency Hz (not UKAS Accredited)	Total Harmonic Distortion % (Not UKAS Accredited)
1/2-INCH	4130	94.12	20.00	1000	0.4
---	---	---	---	---	---

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The expanded uncertainty is as follows:

Output Level = ±0.5dB

Level Step = 0.04dB

Frequency = ±0.5% (repeatability)

Total Harmonic Distortion = ±0.3% Distortion

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Approved for calibration on 11/07/13

Checked by

ICE/S

Approved by

EB

Approved by

LC

Approved for calibration on 11/07/13

[Handwritten signature]

Brüel & Kjær UK Ltd

Bedford House, Rutherford Close, Stevenage, Herts. SG1 2ND

Sales: Tel: 01438 739000 Fax: 01438 739099

Service: Tel: 01438 739100 Fax: 01438 739199

E-mail: ukservice@bksv.com

Address:	TMS Analytical Ltd 12 Barrington Street Limerick Ireland	Date: 21 August 2003
		Your Ref: TMS A135
		Our Ref: 1-21818901

Certificate of Conformance

Type No.	Serial No.	Type No.	Serial No.
4135	19-2370	4135	19-2370

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On behalf of
Brüel & Kjær UK Ltd

APPENDIX TWO

SITE MAP

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Essex Road

Site Entrance

FW1 Foul Sewer Discharge Point

Surface Water Drain

Foul Water Drain

Existing Foul Sewer Output

Proposed Extension of Foul Sewer

TEM

TWG

3 x Waste Compactors

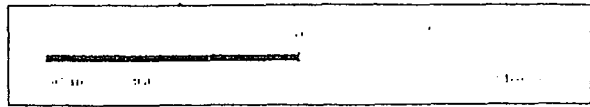
N

B1

B2

LEGEND

- Planted Area
- Property Boundary
- Drain
- Manhole
- B1 Noise Monitoring location (Boundary 1)
- B2 Noise Monitoring location (Boundary 2)
- Trade Effluent Monitoring (17 days)
- Autoclave Steam Exhaust
- d-PA Filter Exhaust
- Treated Waste Water Treatment Plant
- Rin Washer Exhaust



Sterile Technologies, Ireland

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Attachment E.6 – Environmental Nuisance

E.6.a – Bird Control

Disinfected waste either leaves the disinfection system directly into Flexible Intermediate Bulk Containers (FIBC's) or transferred by a conveyor directly into the recovery process.

The FIBC bags are securely tied and immediately placed in a large (40m³) skips awaiting verification of sterility results. These skips are used to transport the treated waste to a designated landfill facility. The conveyor transferring the waste between the treatment and recovery plants will be covered to prevent the ingress of birds and animals.

Separated waste leaves the recovery process and will be placed into either Flexible Intermediate Bulk Containers (FIBC's) – paper, plastic, or textiles – or small skips – metal and glass.

The FIBC bags are securely tied and immediately placed in a large (40m³) skips awaiting verification of sterility results. These skips are used to transport the separated waste to a waste recycling facility. The small skips are covered when full and will be stored outside the building. The combination of the use of covered skips, secured FIBC's, and covered conveyors ensures that the risk of the waste being accessed by birds is minimised.

E.6.b – Dust Control

Emissions of particulate and dust to atmosphere from the facilities treatment and recovery facilities are discussed in attachment E.1. There are no other dust emissions from the facility.

E.6.c – Fire Control

The fire system proposed for the new building is similar to that already in place in the existing facility. The following description therefore applies to both.

The first level of fire protection is afforded by the provision of strategically located fire hydrants at the front and the rear of the buildings. A combination of foam and carbon dioxide fire extinguishers are located at appropriate points throughout the building to assist in the safe egress of occupants from the building. Smoke detectors and heat sensors are used to provide protection as appropriate. Finally, the buildings are protected by a Fire Alarm system communicates automatically with the Emergency Services in the event of an Emergency.

E.6.d – Litter Control

An industrial wet/dry vacuum cleaner is currently used at the 430 Beech Road unit and its use will be extended to the 420 Beech Road premises.

The current litter warden for 430 Beech Road shall extend their duties to 420 Beech Road.

Any litter collected shall be passed through the STI Model 2000 system.

E.6.e – Traffic Control

In the initial inspector's report for planning application S96A/0267 (submitted as attachment Document B.3 D1), the Planning Inspector stated that the present 430 Beech Road operation does not give "...rise to any endangerment of public safety by reason of traffic hazard or creating serious traffic congestion."

Despite the increase in the size of the facility, there will not be any significant increase in vehicle movements as the waste for transfer that will be delivered to Unit 420 is already being delivered to a waste transfer station operated by another company located at Unit 510. In the opinion of STI, the opinion expressed above remains valid.

E.6.f – Vermin Control

STI will retain the services of a registered contractor, who currently conducts vermin control within the 430 Beech Road premises and environs. The service will be replicated for 420 Beech Road.

E.6.g – Road Cleansing

Not applicable to this type of facility.

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