

Mr Dermot Burke
Inspector
Environmental Protection Agency (EPA)
PO Box 3000
Johnstown Castle Estate
Co Wexford

15th February 2013

RE: KMK Metals Recycling Ltd. (KMK)
Waste licence ref: W0113-03
Request under condition 6.7 regarding stack emissions monitoring.

Dear Mr Burke,

Under condition 6.7 of the waste licence W0113-03 which states 'The frequency, location, methods and scope of monitoring, sampling and analyses, as set out in this licence, may be amended with the agreement of the Agency following evaluation of test results', KMK therefore wishes to amend the frequency of sampling of the stack emission point ref: A2-8 from Quarterly to Annually.

In support of this request, please consider the following points;

- To date, there have been five separate stack emissions monitoring exercises conducted during 2012. These reports are included in Appendix 1 to this submission and are summarised below in terms of dates and total particulate results obtained;

Monitoring Date	Monitoring Company	Reference	Result (mg/Nm3)	Emission Limit value (mg/Nm3)
24/05/2012	Glenside Environmental	Initiated by KMK	0.75	12.5
20/07/2012	Glenside Environmental	EPA required "July"	0.21	12.5
30/08/2012	Glenside Environmental	EPA required "August"	Run 1: <0.45 Run 2: 0.33	12.5
28/09/2012	Glenside Environmental	EPA required "September"	Run 1: 5.23 Run 2: 0.24	12.5
17/12/2012	Glenside Environmental	EPA required "Quarterly Q4"	<0.003	12.5

As can be seen from the table above, there is a consistent low result for all emissions monitoring conducted during 2012. This reflects a consistent manner of air emissions treatment by the infrastructure on-site.

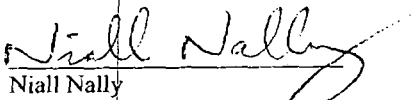
- The WEEE treatment being carried out inside the D-WEEE Plant building has remained unchanged and as such the associated emissions will also being similar in terms of low levels due to the robust abatement infrastructure in place.
- It is proposed to conduct annual stack air emissions monitoring (i.e. total particulates and metals constituents) for future operations at the site in combination with a continuous particulates monitoring probe installed on the stack A2-8. This device effectively operates as a real time detector. Hence, any potential breach or fault on the filter bag which may result in abnormal emissions from the stack above a pre-set level on the probe will be automatically detected and sounded by an alarm alerting management and staff to the occurrence. Appropriate actions can then be taken directly to resolve the situation.
- In addition, a cyclone abatement plant is due to be installed on the air extraction line prior to the bag filter by the 8th of March 2013. The cyclone will effectively screen out the larger dust particles from the incoming air with the air containing fine dust particles being blown out for further treatment using the existing bag house filter system (i.e. media filtration). This double treatment effect will be very effective to ensure particulate emissions are minimal.

Therefore, it is proven that the emissions will be consistently low, of minor significance, self regulated and similar over a typical year with no seasonal changes.

Based on these points, KMK considers that Annual emissions monitoring of the stack is sufficient and looks forward to your response in due course.

If you have any questions, please do not hesitate to contact me.

Yours Sincerely,



Niall Nally
Senior Environmental Consultant
Cc Kurt M Kyck, KMK Metals Ltd, Cappincur Industrial Estate, Tullamore, Co Offaly.

Appendix 1

Stack Emissions Monitoring reports

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Company Name: KMK Metals Recycling Ltd.
 Waste Licence No: W0113-03
 Year: 2012, Visit No: 1
 Report No: 012-050



DOCUMENT AUTHORISATION			
Glenside Report Reference	012-050		
Client:	KMK Metals		
EPA IPPC Licence REF:	W0113-03		
Site Address:	Cappincur Industrial Estate, Daingean Road, Tullamore, Co. Offaly		
Document Title:	Stack Emissions Monitoring Report		
Date of Survey:	24 th May 2012		
Document prepared by:	Glenside Environmental, Unit 7, Westpoint Buildings, Ballincollig, Cork		
Preparation and technical review (including design review for design work) carried out by: Patrick O' Brien MCERTS Level II. Sampling carried out by Patrick Power & Ewa Piatek			
Position/Discipline	Name	Signed	Date
Risk Assessor	Patrick Power		14/06/2012
Issue for Review to Client: Mr. Niall Nally, Enviroco on 15 th June 2012.			
This document has been produced and checked in accordance with the requirements of the Glenside Environmental Quality Management System and is duly authorised for issue.			
Position/Discipline	Name	Signed	Date
Quality Manager	Patrick O' Brien	P. O' Brien	14/06/2012

Company Name: KMK Metals Recycling Ltd.
Waste Licence No: W0113-03
Year: 2012, Visit No: 1
Report No: 012-050

Report Summary:

Job Quotation No: n/a
Operator Licence No: W0113-03
Operator Name: KMK Metals Recycling Ltd.
Installation: Cappincur Industrial Estate, Daingean
Road, Tullamore, Co. Offaly
Contact Name: Mr. Niall Nally

Monitoring dates: 24/05/2012
Phone No: 087/1221422

Monitoring Organisation: Glenside Environmental
Unit 7, Westpoint Buildings
Link Road
Ballincollig
Cork

Phone No: (021) 4810016
Email: info@glenenv.ie

Report Date: 15/06/2012

Report written by: Ewa Piatek
MCERTS reg No: MM07 799
Competency: Level 1
Function: Technician
Endorsements: TE1, TE2, TE3, TE4

Signed:

Report approved by: Patrick O'Brien
MCERTS reg No: MM08 992
Competency: Level 2
Function: Team Leader
Endorsements: TE1, TE2, TE3, TE4
Signed:

Company Name: KMK Metals Recycling Ltd.
Waste Licence No: W0113-03
Year: 2012, Visit No: 1
Report No: 012-050

TABLE OF CONTENTS

	<u>PAGE</u>
1. INTRODUCTION	4
2. OBJECTIVES	4
2.1. SUBSTANCES TO BE MONITORED AT EACH EMISSION POINT.....	4
2.2. SPECIAL REQUIREMENTS	4
3. MONITORING RESULTS	5
3.1. MONITORING RESULTS.....	5
3.2. REFERENCE CONDITIONS.....	6
3.3. METHODS AND ACCREDITATION STATUS.....	6
4. OPERATING INFORMATION	6
5. MONITORING DEVIATION	7
6. ANNEX 1	8
6.1. PERSONNEL.....	8
6.2. EQUIPMENT USED	8
7. ANNEX 2	9
7.1. DIAGRAMS OF THE STACK.....	9
7.2. SAMPLING MEASUREMENTS.....	9
8. ANNEX 3	10
8.1. RESULTS AND UNCERTAINTY CALCULATIONS, CERTIFICATES OF ANALYSIS.....	10

Company Name: KMK Metals Recycling Ltd.
Waste Licence No: W0113-03
Year: 2012, Visit No: 1
Report No: 012-050

1. Introduction

Glenside Environmental was commissioned by KMK Metals Recycling Ltd to perform air emission monitoring at the facility in Cappincur Industrial Estate, Dalngan Road, Tullamore, Co. Offaly. The monitoring was carried out as required by company representative Mr. Niall Nally from Enviroco Environmental Consultants. This report presents details of this monitoring programme.

2. Objectives

2.1. Substances to be monitored at each emission point

Sample Locations	Parameter
Dust Filtration Plant – Exhaust Stack	Particulates Run 1
	Particulates Run 2
	Particulates Run 3
	Metals (Total of Cd+Ti)
	Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)
	Mercury

2.2. Special Requirements

There were no special requirements for this monitoring campaign.

Company Name: KMK Metals Recycling Ltd.
 Waste Licence No: W0113-03
 Year: 2012, Visit No: 1
 Report No: 012-050

3. Monitoring Results
 Tables 3.1 presents the results of the air emission monitoring sampling program carried out at the emission stacks listed below.

3.1. Monitoring Results at Dust Filtration Plant Exhaust Stack

Substances	Emission Limit Value	LOD	Results mg/Nm ³	Uncertainty %	Start –End
Particulates Run 1	n/a	0.17	0.98	0.03	10:06-10:36
Particulates Run 2	n/a	0.32	1.82	0.06	10:55-11:25
Particulates Run 3	n/a	0.32	0.41	0.01	11:34-12:04
Particulates	n/a	0.32	0.75	0.02	09:35-09:41
Metals (Total of Cd+Tl)	n/a	0.0018	<0.0018	n/a	12:23-12:53
Chromium	n/a	0.0030	0.0048	n/a	12:23-12:53
Lead	n/a	0.0009	0.0059	n/a	12:23-12:53
Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)	n/a	0.0175	0.0277	n/a	12:23-12:53
Mercury	n/a	0.0008	<0.0008	n/a	13:09-13:39

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Company Name: KMK Metals Recycling Ltd.
 Waste Licence No: W0113-03
 Year: 2012, Visit No: 1
 Report No: 012-050

3.2. Reference Conditions

Emission Point	Reference Temperature	Reference Pressure	Reference Moisture	Reference Oxygen
Dust Filtration Plant – Exhaust Stack	273 K	101.3 kPa	No correction	No correction

3.3. Methods and Accreditation Status

Emission Point	Substances	Method	SOP Number	Accreditation Status	Analysis Laboratories	Accreditation Status
Dust Filtration Plant – Exhaust Stack	Particulates	BS EN 13284-2002	GEN3-001	n/a	SAL Laboratories Manchester	UKAS
Dust Filtration Plant – Exhaust Stack	Metals	BS EN 14385:2004	GEN3-014	n/a	SAL Laboratories Manchester	UKAS

4. Operating Information

Process Status Load /Feedstock	Process Details	Fuel /Feedstock	Abatement System	Status of Abatement System
Normal Operation	Continuous	1/3 of Load	Dust Filter	In Operation
Normal Operation	Continuous	Full Load	Dust Filter	In Operation

Company Name: KMK Metals Recycling Ltd.
 Waste Licence No: W0113-03
 Year: 2012, Visit No: 1
 Report No: 012-050

5. Monitoring Deviation

Requirements	Comments
Substances were monitored as per monitoring objectives	Yes
Substances were monitored in accordance with the monitoring stated in AG2 (Air Emissions Monitoring Guidance Note#2)	Yes
All monitoring substances were carried out as per Standard/Methods requirements.	Yes

Sampling Location Summary

Requirements	Comments
Stack Shape	Circular
Dimensions	0.8
Recommended 5 hydraulic diameters straight length before sampling plane	Yes
Recommended 2 hydraulic diameters straight length after sampling plane	No
Sufficient ports number Small stacks – 1 port <1.5m – 2 ports >1.5m – 4 ports	1 port
Appropriate port size	Yes
Suitable working platform	Yes
Safe and clean working environment	Yes

Company Name: KMK Metals Recycling Ltd.
Waste Licence No: W0113-03
Year: 2012, Visit No: 1
Report No: 012-050

6. Annex 1

6.1. Personnel

Scientist/Technician Name	Position	Qualification	Technical Endorsements	MCERTS Number
Ewa Piatek	Technician	Level 1	TE1, TE2, TE3, TE4	MM07 799
Patrick Power	Technician	Trainee	-	MM12 1183

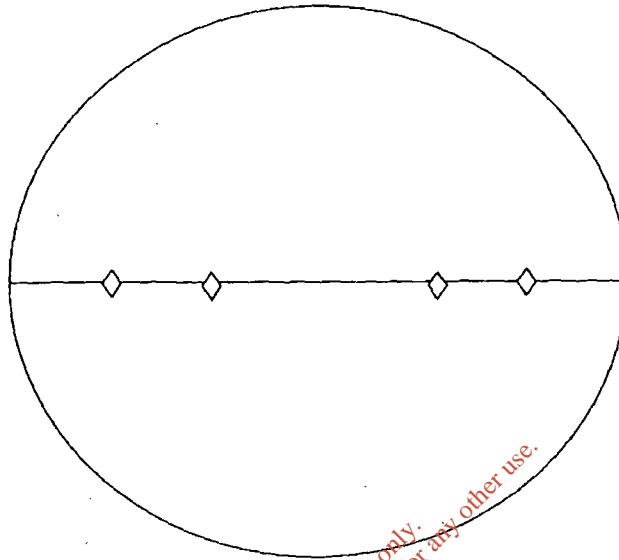
6.2. Equipment used

Equipment
TCR Tecora
Probe
Impinger Set

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7. Annex 2

7.1. Diagrams of the stack indicating Probe Positions



7.2. Sampling measurements

Determinant	Result	Units
Number of Ports Sampled	2	-
Number of Points Sampled	16	-
Average Velocity v'a	9.04	m/s
Average Pressure	100.3	kPa
Average Temperature	25.73	°C
Stack Diameter	0.8	m
Actual Moist Flow Rate	16362.02	m ³ /Hr
Moist Flow Rate at STP	14805.33	m ³ /Hr
Dry Flow Rate at STP	14760.91	m ³ /Hr
T Reference	273	Deg K
P Reference	101.3	kPa
Isokinetic condition	Run 1 -1.73 Run 2 1.44 Run 3 2.11 Metals -1.59 Mercury -1.01	%
Oxygen	n/a	%
Water vapour	0.3	%

Company Name: KMK Metals Recycling Ltd.
Waste Licence No: W0113-03
Year: 2012, Visit No: 1
Report No: 012-050

8. Annex 3

8.1. Results and uncertainty calculations, certificates of analysis

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Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 2
Report No: 012-50-02rev.1



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Stack Emissions Monitoring Report

for

KMK Metals Recycling Ltd.

Cappincur Industrial Estate, Daingean Road,
Tullamore, Co. Offaly

EPA Waste Licence REF: W0113-03

Report No: 012-050-02 Rev.1

Monitoring Date:
20th July 2012

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 2
 Report No: 012-50-02rev.1

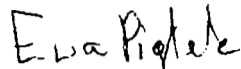
Report Summary:	
Job Quotation No:	QGE12-003
Operator Licence No:	W0113-03
Operator Name:	KMK Metals Recycling Ltd.
Installation:	Cappincur Industrial Estate, Daingean Road, Tullamore, Co. Offaly
Contact Name:	Mr. Niall Nally
Phone No:	n/a
Monitoring dates:	20/07/2012
Monitoring Organisation:	Glenside Environmental Unit 7, Westpoint Buildings, Link Road Ballincollig
Phone No:	(021) 4810016
Email:	info@glenenv.ie
Report Date:	31/08/2012
Report written by:	Ewa Piatek
MCERTS reg No:	MM07 799
Competency:	Level 1
Function:	Technician
Endorsements:	TE1, TE2, TE3, TE4
Signed:	
Report approved by:	Patrick O'Brien
MCERTS reg No:	MM08 992
Competency:	Level 2
Function:	Team Leader
Endorsements:	TE1, TE2, TE3, TE4
Signed:	

TABLE OF CONTENTS

	<u>PAGE</u>
1. INTRODUCTION	4
2. OBJECTIVES	4
2.1. SUBSTANCES TO BE MONITORED AT EACH EMISSION POINT	4
2.2. SPECIAL REQUIREMENTS	4
3. MONITORING RESULTS	6
3.1. MONITORING RESULTS	6
3.2. REFERENCE CONDITIONS	8
3.3. METHODS AND ACCREDITATION STATUS	8
4. OPERATING INFORMATION	8
5. MONITORING DEVIATION	9
6. ANNEX 1	10
6.1. PERSONNEL	10
6.2. EQUIPMENT USED	10
7. ANNEX 2	11
7.1. DIAGRAMS OF THE STACK	11
7.2. SAMPLING MEASUREMENTS	11
8. ANNEX 3	12
8.1. RESULTS AND UNCERTAINTY CALCULATIONS, CERTIFICATES OF ANALYSIS	12

1. Introduction

Glenside Environmental was commissioned by KMK Metals Recycling Ltd to perform air emission monitoring at the facility in Cappincur Industrial Estate, Dalngean Road, Tullamore, Co. Offaly. The monitoring was carried out as specified in Technical Amendment A of the Waste Licence W0113-03 for the facility. Condition C.1.2 specifies monitoring of particulates and metals for 3 months following the date of the Technical Amendment and quarterly thereafter. This report presents details of this monitoring programme.

2. Objectives

2.1. Substances to be monitored at each emission point

Sample Locations	Parameter
A2-8	Particulates
	Metals (Total of Cd+Ti)
	Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)
	Chromium
	Lead
	Mercury
	Aluminium
	Arsenic
	Cadmium
	Copper
	Iron
	Nickel

2.2. Special Requirements

There were no special requirements for this monitoring campaign.

3. Materials and Methods

This section provides brief details of the methodologies employed to perform the air emission monitoring.

3.1. Particulates

A sample stream of gas is extracted from the main gas stream at representative sampling points for 30 minutes, with an isokinetically controlled flow rate and measured volume. The dust entrained in the gas sample is separated by a pre-weighed filter, which is then dried and reweighed. Deposits upstream of the filter in the sampling equipment are also recovered and weighed. The increase of mass of the filter and the deposited mass upstream of the filter are attributed to dust collected from the sampled gas, which allows the dust concentration to be calculated.

3.2. Metals

A known volume of flue gas is extracted representatively from a duct or a chimney during a certain period of time at a controlled flow rate following EN13284-1:2004 (Particulates Standard). The dust in the sampled gas volume is collected on a filter. Thereafter, the gas stream is passed through a series of absorbers containing absorption solutions and the filter passing fractions of the specific elements are collected within these solutions.

3.3. Volumetric Flow Rate

The volumetric airflow rate was determined from stack velocity measurements calculated in accordance with BS EN 13284. Airflow rate and temperature profiles were performed at pre-calculated intervals across the stack in order to determine the average velocity profile across the stack diameters. Results are presented in table 4.3.

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 Licence No: W0113-03
 Year: 2012, Visit No: 2
 Report No: 012-50-02rev.1

4. Monitoring Results

Tables 4.1 present the results of the air emission monitoring sampling program carried out at the emission stacks listed below.

4.1. Monitoring Results

Results reported are corrected to reference conditions as per IPPC Licence requirements.

Emission Point	Substances	ELV mg/Nm ³	CEMS Results	LOD mg/Nm ³	Results mg/Nm ³	Results kg/hr	Uncertainty mg/m ³	Date of Monitoring	Start -End Time of Monitoring
A2-8	Particulates	12.5	n/a	0.16	0.21	0.004	0.01	20/07/2012	09:27-10:08
A2-8	Metals (Total of Cd+Pb)	n/a	n/a	0.0016	0.0518	0.0010	n/a	20/07/2012	10:16-10:57
A2-8	Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)	n/a	n/a	0.0152	0.9140	0.0180	n/a	20/07/2012	10:16-10:57
A2-8	Chromium	n/a	n/a	0.0026	0.2902	0.0057	n/a	20/07/2012	10:16-10:57
A2-8	Lead	n/a	n/a	0.0008	0.0392	0.0008	n/a	20/07/2012	10:16-10:57
A2-8	Mercury	n/a	n/a	0.0006	0.0094	0.0002	n/a	20/07/2012	10:59-11:32
A2-8	Aluminium	n/a	n/a	0.0021	0.0124	0.0002	n/a	20/07/2012	10:16-10:57
A2-8	Arsenic	n/a	n/a	0.0007	0.0210	0.0004	n/a	20/07/2012	10:16-10:57
A2-8	Cadmium	n/a	n/a	0.0008	0.0233	0.0004	n/a	20/07/2012	10:16-10:57
A2-8	Copper	n/a	n/a	0.0010	0.0165	0.0003	n/a	20/07/2012	10:16-10:57
A2-8	Iron	n/a	n/a	0.0027	0.0279	0.0005	n/a	20/07/2012	10:16-10:57
A2-8	Nickel	n/a	n/a	0.0032	0.1469	0.0029	n/a	20/07/2012	10:16-10:57

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 2
 Report No: 012-50-02rev.1

Emission Point	Substances	ELV mg/Nm ³	CEMS Results	LOD mg/Nm ³	Results mg/Nm ³	Results kg/hr	Uncertainty mg/m ³	Date of Monitoring	Start-End Time of Monitoring
Blank	Particulates	n/a	n/a	0.16	<0.16	n/a	0.01	20/07/2012	09:15-09:20
Blank	Metals (Total of Cd+Tl)	n/a	n/a	0.0016	<0.0016	n/a	n/a	20/07/2012	11:44-11:49
Blank	Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)	n/a	n/a	0.0152	<0.0152	n/a	n/a	20/07/2012	11:44-11:49
Blank	Chromium	n/a	n/a	0.0026	0.0029	n/a	n/a	20/07/2012	11:44-11:49
Blank	Lead	n/a	n/a	0.0008	0.0010	n/a	n/a	20/07/2012	11:50-11:55
Blank	Mercury	n/a	n/a	0.0006	<0.0006	n/a	n/a	20/07/2012	11:44-11:49
Blank	Aluminium	n/a	n/a	0.0021	0.0238	n/a	n/a	20/07/2012	11:44-11:49
Blank	Arsenic	n/a	n/a	0.0007	<0.0007	n/a	n/a	20/07/2012	11:44-11:49
Blank	Cadmium	n/a	n/a	0.0008	<0.0008	n/a	n/a	20/07/2012	11:44-11:49
Blank	Copper	n/a	n/a	0.0010	<0.0008	n/a	n/a	20/07/2012	11:44-11:49
Blank	Iron	n/a	n/a	0.0027	0.0995	n/a	n/a	20/07/2012	11:44-11:49
Blank	Nickel	n/a	n/a	0.0032	0.0032	n/a	n/a	20/07/2012	11:44-11:49

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 2
 Report No: 012-50-02rev.1

4.2. Reference Conditions

Emission Point	Reference Temperature	Reference Pressure	Reference Moisture	Reference Oxygen
A2-8	273 K	101.3 kPa	No correction	No correction

4.3. Volumetric Flow Rate

Emission Point	Actual Moist Flow Rate	Moist Flow Rate at STP	Dry Flow Rate at STP	Emission Limit Value	Units
A2-8	21419.13	19682.58	n/a	40 000	m ³ /Hr

4.4. Methods and Accreditation Status

Emission Point	Substances	Method	SOP Number	Accreditation Status	Analysis Laboratories	Accreditation Status
A2-8	Flow, Temperature and Pressure	BS EN 13284-2002	GEN3-001	n/a	n/a	n/a
A2-8	Particulates	BS EN 13284-2002	GEN3-001	n/a	SAL Laboratories Manchester	UKAS
A2-8	Metals	BS EN 14385:2004	GEN3-014	n/a	SAL Laboratories Manchester	n/a

5. Operating Information

Emission Point	Process Status Load /Feedstock	Process Details	Fuel /Feedstock	Abatement System	Status of Abatement System
A2-8	Normal Operation	Full Load	n/a	Filter	In Operation

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 2
 Report No: 012-50-02rev.1

6. Monitoring Deviation

Requirements	Comments
Substances were monitored as per monitoring objectives	Yes
Substances were monitored in accordance with the monitoring stated in AG2 (Air Emissions Monitoring Guidance Note#2)	Yes
All monitoring substances were carried out as per Standard/Methods requirements.	Yes

Sampling Location Summary

Requirements	Comments
Stack Shape	Circular
Dimensions	0.8
Recommended 5 hydraulic diameters straight length before sampling plane	Yes
Recommended 2 hydraulic diameters straight length after sampling plane	No
Sufficient ports number Small stacks – 1 port <1.5m – 2 ports >1.5m – 4 ports	1 port
Appropriate port size	Yes
Suitable working platform	Yes
Safe and clean working environment	Yes

Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 2
Report No: 012-50-02rev.1

7. Annex 1

7.1. Personnel

Scientist/Technician Name	Position	Qualification	Technical Endorsements	MCERTS Number
Ewa Piatek	Technician	Level 1	TE1, TE2, TE3, TE4	MM07 799
Patrick Power	Technician	Trainee	-	MM12 1183

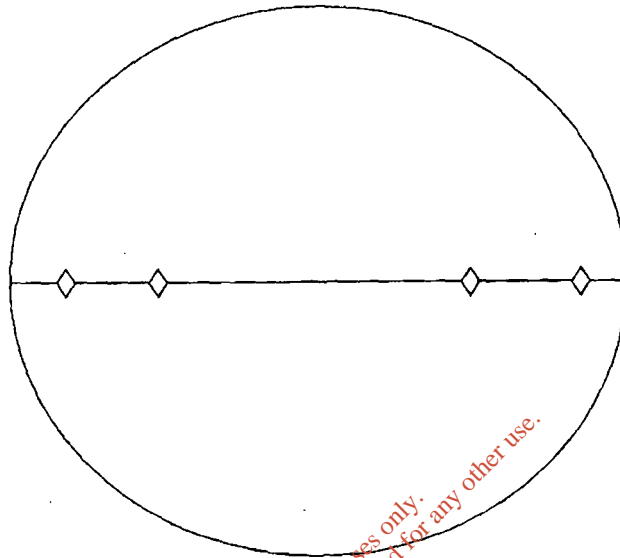
7.2. Equipment used

Equipment	GEN Equipment No
TCR	EQ050
Impinger System	EQ051
Probe	EQ052
Pitot tube	EQ053
Nozzles	EQ054
Filters	Laboratory supplied

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8. Annex 2

8.1. Diagrams of the stack



8.2. Sampling measurements

Determinant	Result	Units
Number of Ports Sampled	1	-
Number of Points Sampled	4	-
Average Velocity v'a	11.84	m/s
Average Pressure	100.3	kPa
Average Temperature	21.15	°C
Stack Diameter	0.8	m
T Reference	273	Deg K
P Reference	101.3	kPa
Isokinetic condition	Particulates -3.05 Metals -0.84 Mercury -1.90	%
Oxygen	n/a	%
Water vapour	n/a	%

Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 2
Report No: 012-50-02rev.1

9. Annex 3

9.1. Results and uncertainty calculations, certificates of analysis

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Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 3
Report No: 012-50-03



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Cork
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M: 086-3819387
e: info@glenenv.ie
W: www.glenenv.ie

Stack Emissions Monitoring Report

for

KMK Metals Recycling Ltd.

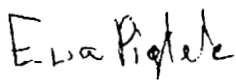
Cappincur Industrial Estate, Daingean Road,
Tullamore, Co. Offaly

EPA Waste Licence REF: W0113-03

Report No: 012-050-03

Monitoring Date:
30th August 2012

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 3
 Report No: 012-50-03

Report Summary:	
Job Quotation No:	QGE12-003
Operator Licence No:	W0113-03
Operator Name:	KMK Metals Recycling Ltd.
Installation:	Cappincur Industrial Estate, Daingean Road, Tullamore, Co. Offaly
Contact Name:	Mr. Niall Nally
Phone No:	n/a
Monitoring dates:	30/08/2012
Monitoring Organisation:	Glenside Environmental Unit 7, Westpoint Buildings, Link Road Ballincollig
Phone No:	(021) 4810016
Email:	info@glenenv.ie
Report Date:	03/10/2012
Report written by:	Ewa Piatek
MCERTS reg No:	MM07 799
Competency:	Level 1
Function:	Technician
Endorsements:	TE1, TE2, TE3, TE4
Signed:	
Report approved by:	Patrick O'Brien
MCERTS reg No:	MM08 992
Competency:	Level 2
Function:	Team Leader
Endorsements:	TE1, TE2, TE3, TE4
Signed:	

Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 3
Report No: 012-50-03

TABLE OF CONTENTS

	<u>PAGE</u>
1. INTRODUCTION	4
2. OBJECTIVES	4
2.1. SUBSTANCES TO BE MONITORED AT EACH EMISSION POINT	4
2.2. SPECIAL REQUIREMENTS	4
3. MATERIALS AND METHODS	5
3.1. PARTICULATES	5
3.2. METALS	5
3.3. VOLUMETRIC FLOW RATE	5
4. MONITORING RESULTS	6
4.1. MONITORING RESULTS	6
4.2. REFERENCE CONDITIONS	8
4.3. VOLUMETRIC FLOW RATE	8
4.4. METHODS AND ACCREDITATION STATUS	8
5. OPERATING INFORMATION	8
6. MONITORING DEVIATION	9
7. ANNEX 1	10
7.1. PERSONNEL.....	10
7.2. EQUIPMENT USED	10
8. ANNEX 2	11
8.1. DIAGRAMS OF THE STACK	11
8.2. SAMPLING MEASUREMENTS	11
9. ANNEX 3	12
9.1. RESULTS AND UNCERTAINTY CALCULATIONS, CERTIFICATES OF ANALYSIS	12

1. Introduction

Glenside Environmental was commissioned by KMK Metals Recycling Ltd to perform air emission monitoring at the facility in Cappincur Industrial Estate, Dalngear Road, Tullamore, Co. Offaly. The monitoring was carried out as required by company representative Mr. Niall Nally from Enviroco Environmental Consultants. This report presents details of this monitoring programme.

2. Objectives

2.1. Substances to be monitored at each emission point

Sample Locations	Parameter
A2-8	Particulates
	Metals (Total of Cd+Tl)
	Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)
	Chromium
	Lead
	Mercury
	Aluminium
	Arsenic
	Cadmium
	Copper
	Iron
	Nickel
	Zinc

2.2. Special Requirements

There were no special requirements for this monitoring campaign.

3. Materials and Methods

This section provides brief details of the methodologies employed to perform the air emission monitoring.

3.1. Particulates

A sample stream of gas is extracted from the main gas stream at representative sampling points for 30 minutes, with an isokinetically controlled flow rate and measured volume. The dust entrained in the gas sample is separated by a pre-weighed filter, which is then dried and reweighed. Deposits upstream of the filter in the sampling equipment are also recovered and weighed. The increase of mass of the filter and the deposited mass upstream of the filter are attributed to dust collected from the sampled gas, which allows the dust concentration to be calculated.

3.2. Metals

A known volume of flue gas is extracted representatively from a duct or a chimney during a certain period of time at a controlled flow rate following EN13284-1:2004 (Particulates Standard). The dust in the sampled gas volume is collected on a filter. Thereafter, the gas stream is passed through a series of absorbers containing absorption solutions and the filter passing fractions of the specific elements are collected within these solutions.

3.3. Volumetric Flow Rate

The volumetric airflow rate was determined from stack velocity measurements calculated in accordance with BS EN 13284. Airflow rate and temperature profiles were performed at pre-calculated intervals across the stack in order to determine the average velocity profile across the stack diameters. Results are presented in table 4.3.

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 3
 Report No: 012-50-03

4. Monitoring Results

Table 4.1 presents the results of the air emission monitoring sampling program carried out at the emission stacks listed below.

4.1. Monitoring Results

Results reported are corrected to reference conditions as per IPPC Licence requirements.

Emission Point	Substances	ELV mg/Nm ³	CEMS Results	LOD mg/Nm ³	Results mg/Nm ³	Results kg/hr	Uncertainty mg/m ³	Date of Monitoring	Start - End Time of Monitoring
A2-8	Particulates	12.5	n/a	0.45	<0.45	<0.008	0.01	30/08/2012	09:35-10:05
A2-8	Particulates Run 2	12.5	n/a	0.15	0.33	0.006	0.01	30/08/2012	10:21-10:51
A2-8	Metals (Total of Cd+Pb)	n/a	n/a	0.0067	0.0069	0.0001	n/a	30/08/2012	10:21-10:51
A2-8	Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)	n/a	n/a	0.0546	0.2011	0.0038	n/a	30/08/2012	10:21-10:51
A2-8	Chromium	n/a	n/a	0.0094	0.0097	0.0002	n/a	30/08/2012	10:21-10:51
A2-8	Lead	n/a	n/a	0.0033	0.0167	0.0003	n/a	30/08/2012	10:21-10:51
A2-8	Mercury	n/a	n/a	0.0016	<0.0016	0.0000	n/a	30/08/2012	11:14-11:44
A2-8	Aluminium	n/a	n/a	0.0054	0.3231	0.0061	n/a	30/08/2012	10:21-10:51
A2-8	Arsenic	n/a	n/a	0.0032	0.0065	0.0001	n/a	30/08/2012	10:21-10:51
A2-8	Cadmium	n/a	n/a	0.0034	0.0037	0.0001	n/a	30/08/2012	10:21-10:51
A2-8	Copper	n/a	n/a	0.0039	0.0190	0.0004	n/a	30/08/2012	10:21-10:51
A2-8	Iron	n/a	n/a	0.0069	0.0189	0.0003	n/a	30/08/2012	10:21-10:51
A2-8	Nickel	n/a	n/a	0.0108	0.0124	0.0002	n/a	30/08/2012	10:21-10:51
A2-8	Zinc	n/a	n/a	0.0546	0.2011	0.0041	n/a	30/08/2012	10:21-10:51

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 3
 Report No: 012-50-03

Emission Point	Substances	ELV mg/Nm ³	CEMS Results	LOD mg/Nm ³	Results mg/Nm ³	Results kg/hr	Uncertainty mg/m ³	Date of Monitoring	Start-End Time of Monitoring
Blank	Particulates	n/a	n/a	0.45	<0.45	n/a	0.01	30/08/2012	09:13-09:26
Blank	Particulates Run 2	n/a	n/a	0.15	<0.15	n/a	0.01	30/08/2012	10:59-09:26
Blank	Metals (Total of Cd+Ti)	n/a	n/a	0.0067	<0.0067	n/a	n/a	30/08/2012	10:59-11:03
Blank	Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)	n/a	n/a	0.0546	<0.0540	n/a	n/a	30/08/2012	10:59-11:03
Blank	Chromium	n/a	n/a	0.0094	<0.0094	n/a	n/a	30/08/2012	10:59-11:03
Blank	Lead	n/a	n/a	0.0033	0.0035	n/a	n/a	30/08/2012	11:55-11:58
Blank	Mercury	n/a	n/a	0.0016	<0.0016	n/a	n/a	30/08/2012	10:59-11:03
Blank	Aluminium	n/a	n/a	0.0054	0.3028	n/a	n/a	30/08/2012	10:59-11:03
Blank	Arsenic	n/a	n/a	0.0032	0.0063	n/a	n/a	30/08/2012	10:59-11:03
Blank	Cadmium	n/a	n/a	0.0034	0.0081	n/a	n/a	30/08/2012	10:59-11:03
Blank	Copper	n/a	n/a	0.0039	0.0033	n/a	n/a	30/08/2012	10:59-11:03
Blank	Iron	n/a	n/a	0.0069	0.1410	n/a	n/a	30/08/2012	10:59-11:03
Blank	Nickel	n/a	n/a	0.0108	<0.0108	n/a	n/a	30/08/2012	10:59-11:03
Blank	Zinc	n/a	n/a	0.0546	<0.0546	n/a	n/a	30/08/2012	10:59-11:03

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 3
 Report No: 012-50-03

4.2. Reference Conditions

Emission Point	Reference Temperature	Reference Pressure	Reference Moisture	Reference Oxygen
A2-8	273 K	101.3 kPa	No correction	No correction

4.3. Volumetric Flow Rate

Emission Point	Actual Moist Flow Rate	Moist Flow Rate at STP	Dry Flow Rate at STP	Emission Limit Value	Units
A2-8	20653.08	18990.48	n/a	40 000	m ³ /Hr

4.4. Methods and Accreditation Status

Emission Point	Substances	Method	SOP Number	Accreditation Status	Analysis Laboratories	Accreditation Status
A2-8	Flow, Temperature and Pressure	BS EN 13284-2002	GEN3-001	n/a	n/a	n/a
A2-8	Particulates	BS EN 13284-2002	GEN3-001	n/a	SAL Laboratories Manchester	UKAS
A2-8	Metals	BS EN 14385:2004	GEN3-014	n/a	SAL Laboratories Manchester	n/a

5. Operating Information

Emission Point	Process Status Load /Feedstock	Process Details	Fuel /Feedstock	Abatement System	Status of Abatement System
A2-8	Normal Operation	Smasher line not operational	n/a	Filter	In Operation

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 3
 Report No: 012-50-03

6. Monitoring Deviation

Requirements	Comments
Substances were monitored as per monitoring objectives	Yes
Substances were monitored in accordance with the monitoring stated in AG2 (Air Emissions Monitoring Guidance Note#2)	Yes
All monitoring substances were carried out as per Standard/Methods requirements.	Yes

Sampling Location Summary

Requirements	Comments
Stack Shape	Circular
Dimensions	0.8
Recommended 5 hydraulic diameters straight length before sampling plane	Yes
Recommended 2 hydraulic diameters straight length after sampling plane	No
Sufficient ports number Small stacks – 1 port <1.5m – 2 ports >1.5m – 4 ports	1 port
Appropriate port size	Yes
Suitable working platform	Yes
Safe and clean working environment	Yes

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Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 3
Report No: 012-50-03

7. Annex 1

7.1. Personnel

Scientist/Technician Name	Position	Qualification	Technical Endorsements	MCERTS Number
Ewa Piatek	Technician	Level 1	TE1, TE2, TE3, TE4	MM07 799
Patrick Power	Technician	Trainee	-	MM12 1183

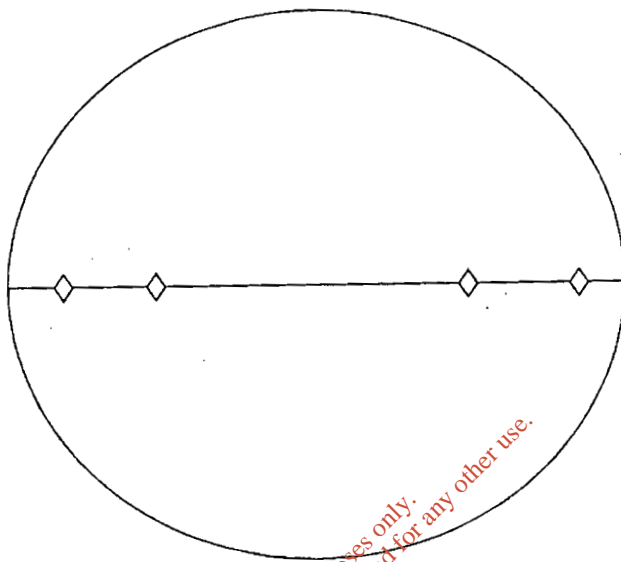
7.2. Equipment used

Equipment	GEN Equipment No
TCR	EQ050
Impinger System	EQ051
Probe	EQ052
Pitot tube	EQ053
Nozzles	EQ054
Filters	Laboratory supplied

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8. Annex 2

8.1. Diagrams of the stack



8.2. Sampling measurements

Determinant	Result	Units
Number of Ports Sampled	1	-
Number of Points Sampled	4	-
Average Velocity v'a	11.41	m/s
Average Pressure	100.3	kPa
Average Temperature	20.94	°C
Stack Diameter	0.8	m
T Reference	273	Deg K
P Reference	101.3	kPa
Isokinetic condition	n/a	%
Oxygen	n/a	%
Water vapour	n/a	%

Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 3
Report No: 012-50-03

9. Annex 3

9.1. Results and uncertainty calculations, certificates of analysis

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Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 4
Report No: 012-50-04.



Glenside Environmental,
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Ballincollig,
Cork
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e: info@glenenv.ie
W: www.glenenv.ie

Stack Emissions Monitoring Report

for

KMK Metals Recycling Ltd.

Cappincur Industrial Estate, Daingean Road,
Tullamore, Co. Offaly

EPA Waste Licence REF: W0113-03

Report No: 012-050-04

Monitoring Date:
28th September 2012

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 4
 Report No: 012-50-04

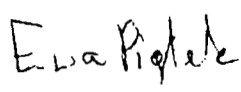
Report Summary:	
Job Quotation No:	QGE12-003
Operator Licence No:	W0113-03
Operator Name:	KMK Metals Recycling Ltd.
Installation:	Cappincur Industrial Estate, Daingean Road, Tullamore, Co. Offaly
Contact Name:	Mr. Niall Nally
Phone No:	n/a
Monitoring dates:	28/09/2012
Monitoring Organisation:	Glenside Environmental Unit 7, Westpoint Buildings, Link Road Ballincollig
Phone No:	(021) 4810016
Email:	info@glenenv.ie
Report Date:	16/10/2012
Report written by:	Ewa Piatek
MCERTS reg No:	MM07 799
Competency:	Level 1
Function:	Technician
Endorsements:	TE1, TE2, TE3, TE4
Signed:	
Report approved by:	Patrick O'Brien
MCERTS reg No:	MM08 992
Competency:	Level 2
Function:	Team Leader
Endorsements:	TE1, TE2, TE3, TE4
Signed:	

TABLE OF CONTENTS

	<u>PAGE</u>
1. INTRODUCTION	4
2. OBJECTIVES	4
2.1. SUBSTANCES TO BE MONITORED AT EACH EMISSION POINT.....	4
2.2. SPECIAL REQUIREMENTS	4
3. MATERIALS AND METHODS	5
3.1. PARTICULATES	5
3.2. METALS	5
3.3. VOLUMETRIC FLOW RATE	5
4. MONITORING RESULTS	6
4.1. MONITORING RESULTS	6
4.2. REFERENCE CONDITIONS	8
4.3. VOLUMETRIC FLOW RATE	8
4.4. METHODS AND ACCREDITATION STATUS	8
5. OPERATING INFORMATION	8
6. MONITORING DEVIATION	9
7. ANNEX 1	10
7.1. PERSONNEL.....	10
7.2. EQUIPMENT USED	10
8. ANNEX 2	11
8.1. DIAGRAMS OF THE STACK	11
8.2. SAMPLING MEASUREMENTS	11
9. ANNEX 3	12
9.1. RESULTS AND UNCERTAINTY CALCULATIONS, CERTIFICATES OF ANALYSIS	12

1. Introduction

Glenside Environmental was commissioned by KMK Metals Recycling Ltd to perform air emission monitoring at the facility in Cappincur Industrial Estate, Dalngean Road, Tullamore, Co. Offaly. The monitoring was carried out as required by company representative Mr. Niall Nally from Enviroco Environmental Consultants. This report presents details of this monitoring programme.

2. Objectives

2.1. Substances to be monitored at each emission point

Sample Locations	Parameter
A2-8	Particulates
	Metals (Total of Cd+Tl)
	Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)
	Chromium
	Lead
	Mercury
	Aluminium
	Arsenic
	Cadmium
	Copper
	Iron
	Nickel
	Zinc

2.2. Special Requirements

There were no special requirements for this monitoring campaign.

3. Materials and Methods

This section provides brief details of the methodologies employed to perform the air emission monitoring.

3.1. Particulates

A sample stream of gas is extracted from the main gas stream at representative sampling points for 30 minutes, with an isokinetically controlled flow rate and measured volume. The dust entrained in the gas sample is separated by a pre-weighed filter, which is then dried and reweighed. Deposits upstream of the filter in the sampling equipment are also recovered and weighed. The increase of mass of the filter and the deposited mass upstream of the filter are attributed to dust collected from the sampled gas, which allows the dust concentration to be calculated.

3.2. Metals

A known volume of flue gas is extracted representatively from a duct or a chimney during a certain period of time at a controlled flow rate following EN13284-1:2004 (Particulates Standard). The dust in the sampled gas volume is collected on a filter. Thereafter, the gas stream is passed through a series of absorbers containing absorption solutions and the filter passing fractions of the specific elements are collected within these solutions.

3.3. Volumetric Flow Rate

The volumetric airflow rate was determined from stack velocity measurements calculated in accordance with BS EN 13284. Airflow rate and temperature profiles were performed at pre-calculated intervals across the stack in order to determine the average velocity profile across the stack diameters. Results are presented in table 4.3.

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 4
 Report No: 012-50-04

4. Monitoring Results

Table 4.1 presents the results of the air emission monitoring sampling program carried out at the emission stacks listed below.

4.1. Monitoring Results

Results reported are corrected to reference conditions as per IPPC Licence requirements.

Emission Point	Substances	ELV mg/Nm ³	CEMS Results	LOD mg/Nm ³	Results mg/Nm ³	Results kg/hr	Uncertainty mg/m ³	Date of Monitoring	Start-End Time of Monitoring
A2-8	Particulates	12.5	n/a	0.45	5.23	0.01	0.17	28/09/2012	09:18-09:48
A2-8	Particulates Run 2	12.5	n/a	0.15	0.24	0.005	0.01	28/09/2012	10:11-10:41
A2-8	Metals (Total of Cd+Tl)	n/a	n/a	0.0067	<0.0067	<0.0001	n/a	28/09/2012	10:11-10:41
A2-8	Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)	n/a	n/a	0.0550	0.1624	0.0031	n/a	28/09/2012	10:11-10:41
A2-8	Chromium	n/a	n/a	0.0095	0.0215	0.0004	n/a	28/09/2012	10:11-10:41
A2-8	Lead	n/a	n/a	0.0033	0.0191	0.0004	n/a	28/09/2012	10:11-10:41
A2-8	Mercury	n/a	n/a	0.0016	<0.0016	0.0000	n/a	28/09/2012	11:18-11:48
A2-8	Aluminium	n/a	n/a	0.0054	0.0321	0.0006	n/a	28/09/2012	10:11-10:41
A2-8	Arsenic	n/a	n/a	0.0032	<0.0032	<0.0001	n/a	28/09/2012	10:11-10:41
A2-8	Cadmium	n/a	n/a	0.0035	<0.0035	<0.0001	n/a	28/09/2012	10:11-10:41
A2-8	Copper	n/a	n/a	0.0039	<0.0039	<0.0001	n/a	28/09/2012	10:11-10:41
A2-8	Iron	n/a	n/a	0.0069	0.0548	0.0010	n/a	28/09/2012	10:11-10:41
A2-8	Nickel	n/a	n/a	0.0109	<0.0109	0.0002	n/a	28/09/2012	10:11-10:41
A2-8	Zinc	n/a	n/a	0.0069	0.0133	0.0003	n/a	28/09/2012	10:11-10:41

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 4
 Report No: 012-50-04

Emission Point	Substances	ELV mg/Nm ³	CEMS Results	LOD mg/Nm ³	Results mg/Nm ³	Results kg/hr	Uncertainty mg/m ³	Date of Monitoring	Start -End Time of Monitoring
Blank	Particulates	n/a	n/a	0.45	1.35	n/a	0.04	28/09/2012	09:03-09:06
Blank	Particulates Run 2	n/a	n/a	0.15	<0.15	n/a	0.00	28/09/2012	09:55-09:58
Blank	Metals (Total of Cd+Ti)	n/a	n/a	0.0067	<0.0067	n/a	n/a	28/09/2012	09:55-09:58
Blank	Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)	n/a	n/a	0.0550	0.0776	n/a	n/a	28/09/2012	09:55-09:58
Blank	Chromium	n/a	n/a	0.0095	<0.0095	n/a	n/a	28/09/2012	09:55-09:58
Blank	Lead	n/a	n/a	0.0033	0.0039	n/a	n/a	28/09/2012	09:55-09:58
Blank	Mercury	n/a	n/a	0.0016	<0.0016	n/a	n/a	28/09/2012	11:56-11:59
Blank	Aluminium	n/a	n/a	0.0054	0.0099	n/a	n/a	28/09/2012	09:55-09:58
Blank	Arsenic	n/a	n/a	0.0032	<0.0032	n/a	n/a	28/09/2012	09:55-09:58
Blank	Cadmium	n/a	n/a	0.0035	<0.0035	n/a	n/a	28/09/2012	09:55-09:58
Blank	Copper	n/a	n/a	0.0039	<0.0039	n/a	n/a	28/09/2012	09:55-09:58
Blank	Iron	n/a	n/a	0.0069	<0.0069	n/a	n/a	28/09/2012	09:55-09:58
Blank	Nickel	n/a	n/a	0.0109	<0.0109	n/a	n/a	28/09/2012	09:55-09:58
Blank	Zinc	n/a	n/a	0.0069	<0.0069	n/a	n/a	28/09/2012	09:55-09:58

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 4
 Report No: 012-50-04

4.2. Reference Conditions

Emission Point	Reference Temperature	Reference Pressure	Reference Moisture	Reference Oxygen
A2-8	273 K	101.3 kPa	No correction	No correction

4.3. Volumetric Flow Rate

Emission Point	Actual Moist Flow Rate	Moist Flow Rate at STP	Dry Flow Rate at STP	Emission Limit Value	Units
A2-8	20514.35	19050.77	n/a	40 000	m ³ /Hr

4.4. Methods and Accreditation Status

Emission Point	Substances	Method	SOP Number	Accreditation Status	Analysis Laboratories	Accreditation Status
A2-8	Flow, Temperature and Pressure	BS EN 13284-2002	GEN3-001	n/a	n/a	n/a
A2-8	Particulates	BS EN 13284-2002	GEN3-001	n/a	SAL Laboratories Manchester	UKAS
A2-8	Metals	BS EN 14385:2004	GEN3-014	n/a	SAL Laboratories Manchester	n/a

5. Operating Information

Emission Point	Process Status Load /Feedstock	Process Details	Fuel /Feedstock	Abatement System	Status of Abatement System
A2-8	Normal Operation	Full Load	n/a	Filter	In Operation

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 4
 Report No: 012-50-04

6. Monitoring Deviation

Requirements	Comments
Substances were monitored as per monitoring objectives	Yes
Substances were monitored in accordance with the monitoring stated in AG2 (Air Emissions Monitoring Guidance Note#2)	Yes
All monitoring substances were carried out as per Standard/Methods requirements:	Yes

Sampling Location Summary

Requirements	Comments
Stack Shape	Circular
Dimensions	0.8
Recommended 5 hydraulic diameters straight length before sampling plane	Yes
Recommended 2 hydraulic diameters straight length after sampling plane	No
Sufficient ports number Small stacks – 1 port <1.5m – 2 ports >1.5m – 4 ports	1 port
Appropriate port size	Yes
Suitable working platform	Yes
Safe and clean working environment	Yes

Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 4
Report No: 012-50-04

7. Annex 1

7.1. Personnel

Scientist/Technician Name	Position	Qualification	Technical Endorsements	MCERTS Number
Ewa Piatek	Technician	Level 1	TE1, TE2, TE3, TE4	MM07 799
Patrick Power	Technician	Trainee	-	MM12 1183

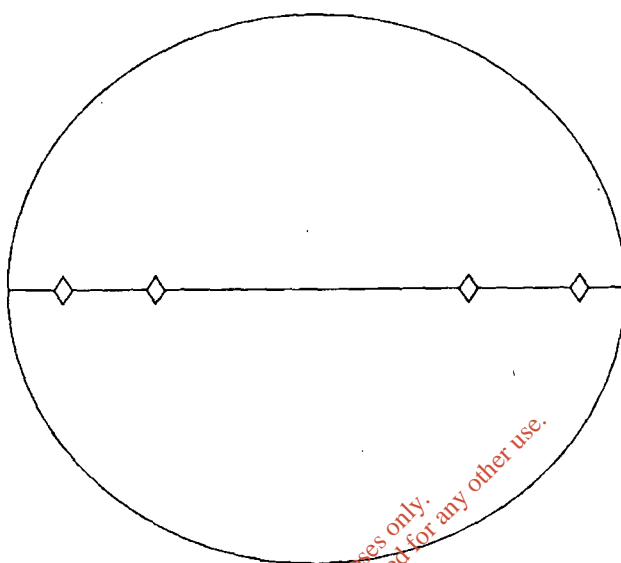
7.2. Equipment used

Equipment	GEN Equipment No
TCR	EQ050
Impinger System	EQ051
Probe	EQ052
Pitot tube	EQ053
Nozzles	EQ054
Filters	Laboratory supplied

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8. Annex 2

8.1. Diagrams of the stack



8.2. Sampling measurements

Determinant	Result	Units
Number of Ports Sampled	1	-
Number of Points Sampled	4	-
Average Velocity v'a	11.34	m/s
Average Pressure	101.3	kPa
Average Temperature	20.97	°C
Stack Diameter	0.8	m
T Reference	273	Deg K
P Reference	101.3	kPa
Isokinetic condition	n/a	%
Oxygen	n/a	%
Water vapour	n/a	%

Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 4
Report No: 012-50-04

9. Annex 3

9.1. Results and uncertainty calculations, certificates of analysis

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Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 5
Report No: 012-50-05



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Stack Emissions Monitoring Report

for

KMK Metals Recycling Ltd.

Cappincur Industrial Estate, Daingean Road,
Tullamore, Co. Offaly

EPA Waste Licence REF: W0113-03

Report No: 012-050-05

Monitoring Date:
17th December 2012

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 5
 Report No: 012-50-05

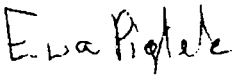
Report Summary:	
Job Quotation No:	QGE12-003
Operator Licence No:	W0113-03
Operator Name:	KMK Metals Recycling Ltd.
Installation:	Cappincur Industrial Estate, Daingean Road, Tullamore, Co. Offaly
Contact Name:	Mr. Niall Nally
Phone No:	n/a
Monitoring dates:	17/12/2012
Monitoring Organisation:	Glenside Environmental Unit 7, Westpoint Buildings, Link Road Ballincollig
Phone No:	(021) 4810016
Email:	info@glenenv.ie
Report Date:	10/01/2013
Report written by:	Ewa Piatek
MCERTS reg No:	MM07 799
Competency:	Level 1
Function:	Technician
Endorsements:	TE1, TE2, TE3, TE4
Signed:	
Report approved by:	Patrick O'Brien
MCERTS reg No:	MM08 992
Competency:	Level 2
Function:	Team Leader
Endorsements:	TE1, TE2, TE3, TE4
Signed:	

TABLE OF CONTENTS

	<u>PAGE</u>
1. INTRODUCTION	4
2. OBJECTIVES	4
2.1. SUBSTANCES TO BE MONITORED AT EACH EMISSION POINT.....	4
2.2. SPECIAL REQUIREMENTS	4
3. MATERIALS AND METHODS	5
3.1. PARTICULATES	5
3.2. METALS	5
3.3. VOLUMETRIC FLOW RATE	5
4. MONITORING RESULTS	6
4.1. MONITORING RESULTS	6
4.2. REFERENCE CONDITIONS	8
4.3. VOLUMETRIC FLOW RATE	8
4.4. METHODS AND ACCREDITATION STATUS	8
5. OPERATING INFORMATION	8
6. MONITORING DEVIATION	9
7. ANNEX 1	10
7.1. PERSONNEL.....	10
7.2. EQUIPMENT USED	10
8. ANNEX 2	11
8.1. DIAGRAMS OF THE STACK	11
8.2. SAMPLING MEASUREMENTS	11
9. ANNEX 3	12
9.1. RESULTS AND UNCERTAINTY CALCULATIONS, CERTIFICATES OF ANALYSIS	12

1. Introduction

Glenside Environmental was commissioned by KMK Metals Recycling Ltd to perform air emission monitoring at the facility in Cappincur Industrial Estate, Dalngean Road, Tullamore, Co. Offaly. The monitoring was carried out as required by company representative Mr. Niall Nally from Nally Environmental. This report presents details of this monitoring programme.

2. Objectives

2.1. Substances to be monitored at each emission point

Sample Locations	Parameter
A2-8	Particulates
	Metals (Total of Cd+Tl)
	Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)
	Chromium
	Lead
	Mercury
	Aluminium
	Arsenic
	Cadmium
	Copper
	Iron
	Nickel
	Zinc

2.2. Special Requirements

There were no special requirements for this monitoring campaign.

Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 5
Report No: 012-50-05

3. Materials and Methods

This section provides brief details of the methodologies employed to perform the air emission monitoring.

3.1. Particulates

A sample stream of gas is extracted from the main gas stream at representative sampling points for 30 minutes, with an isokinetically controlled flow rate and measured volume. The dust entrained in the gas sample is separated by a pre-weighed filter, which is then dried and reweighed. Deposits upstream of the filter in the sampling equipment are also recovered and weighed. The increase of mass of the filter and the deposited mass upstream of the filter are attributed to dust collected from the sampled gas, which allows the dust concentration to be calculated.

3.2. Metals

A known volume of flue gas is extracted representatively from a duct or a chimney during a certain period of time at a controlled flow rate following EN13284-1:2004 (Particulates Standard). The dust in the sampled gas volume is collected on a filter. Thereafter, the gas stream is passed through a series of absorbers containing absorption solutions and the filter passing fractions of the specific elements are collected within these solutions.

3.3. Volumetric Flow Rate

The volumetric airflow rate was determined from stack velocity measurements calculated in accordance with BS EN 13284. Airflow rate and temperature profiles were performed at pre-calculated intervals across the stack in order to determine the average velocity profile across the stack diameters. Results are presented in table 4.3.

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 5
 Report No: 012-50-05

4. Monitoring Results

Table 4.1 presents the results of the air emission monitoring sampling program carried out at the emission stacks listed below.

4.1. Monitoring Results

Results reported are corrected to reference conditions as per IPPC Licence requirements.

Emission Point	Substances	ELV mg/Nm ³	CEMS Results	LOD mg/Nm ³	Results mg/Nm ³	Results kg/hr	Uncertainty mg/m ³	Date of Monitoring	Start-End Time of Monitoring
A2-8	Particulates	12.5	n/a	0.13	<0.003	n/a	0.004	17/12/2012	10:17-10:50
A2-8	Metals (Total of Cd+Tl)	n/a	n/a	0.0019	<0.0019	0.0000	n/a	17/12/2012	11:01-11:32
A2-8	Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)	n/a	n/a	0.0157	0.0210	0.0005	n/a	17/12/2012	11:01-11:32
A2-8	Chromium	n/a	n/a	0.0027	0.0030	0.0001	n/a	17/12/2012	11:01-11:32
A2-8	Lead	n/a	n/a	0.0009	0.0015	0.0009	n/a	17/12/2012	11:01-11:32
A2-8	Mercury	n/a	n/a	0.0005	0.0005	0.0000	n/a	17/12/2012	12:42-12:12
A2-8	Aluminium	n/a	n/a	0.0016	0.0066	0.0002	n/a	17/12/2012	11:01-11:32
A2-8	Arsenic	n/a	n/a	0.0009	<0.0009	0.0000	n/a	17/12/2012	11:01-11:32
A2-8	Cadmium	n/a	n/a	0.0010	<0.0010	0.0000	n/a	17/12/2012	11:01-11:32
A2-8	Copper	n/a	n/a	0.0011	<0.0011	0.0000	n/a	17/12/2012	11:01-11:32
A2-8	Iron	n/a	n/a	0.0020	0.0052	0.0001	n/a	17/12/2012	11:01-11:32
A2-8	Nickel	n/a	n/a	0.0031	0.0034	0.0001	n/a	17/12/2012	11:01-11:32
A2-8	Zinc	n/a	n/a	0.0020	0.0663	0.0017	n/a	17/12/2012	11:01-11:32

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 5
 Report No: 012-50-05

Emission Point	Substances	ELV mg/Nm ³	CEMS Results	LOD mg/Nm ³	Results mg/Nm ³	Results kg/hr	Uncertainty mg/m ³	Date of Monitoring	Start -End Time of Monitoring
Blank	Particulates	n/a	n/a	0.13	<0.13	n/a	0.02	17/12/2012	10:03-10:06
Blank	Metals (Total of Cd+Tl)	n/a	n/a	0.0019	<0.0019	n/a	n/a	17/12/2012	10:30-10:36
Blank	Metals (Total of Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Be)	n/a	n/a	0.0157	0.0180	n/a	n/a	17/12/2012	10:30-10:36
Blank	Chromium	n/a	n/a	0.0027	<0.0027	n/a	n/a	17/12/2012	10:30-10:36
Blank	Lead	n/a	n/a	0.0009	<0.0009	n/a	n/a	17/12/2012	1231-12:37
Blank	Mercury	n/a	n/a	0.0005	<0.0005	n/a	n/a	17/12/2012	10:30-10:36
Blank	Aluminium	n/a	n/a	0.0016	<0.0016	n/a	n/a	17/12/2012	10:30-10:36
Blank	Arsenic	n/a	n/a	0.0009	<0.0009	n/a	n/a	17/12/2012	10:30-10:36
Blank	Cadmium	n/a	n/a	0.0010	<0.0010	n/a	n/a	17/12/2012	10:30-10:36
Blank	Copper	n/a	n/a	0.0011	<0.0011	n/a	n/a	17/12/2012	10:30-10:36
Blank	Iron	n/a	n/a	0.0020	0.0043	n/a	n/a	17/12/2012	10:30-10:36
Blank	Nickel	n/a	n/a	0.0031	<0.0031	n/a	n/a	17/12/2012	10:30-10:36
Blank	Zinc	n/a	n/a	0.0020	<0.0020	n/a	n/a	17/12/2012	10:30-10:36

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 5
 Report No: 012-50-05

4.2. Reference Conditions

Emission Point	Reference Temperature	Reference Pressure	Reference Moisture	Reference Oxygen
A2-8	273 K	101.3 kPa	No correction	No correction

4.3. Volumetric Flow Rate

Emission Point	Actual Moist Flow Rate	Moist Flow Rate at STP	Dry Flow Rate at STP	Emission Limit Value	Units
A2-8	27589.72	25748.11	n/a	40 000	m ³ /Hr

4.4. Methods and Accreditation Status

Emission Point	Substances	Method	SOP Number	Accreditation Status	Analysis Laboratories	Accreditation Status
A2-8	Flow, Temperature and Pressure	BS EN 13284-2002	GEN3-001	n/a	n/a	n/a
A2-8	Particulates	BS EN 13284-2002	GEN3-001	n/a	SAL Laboratories Manchester	UKAS
A2-8	Metals	BS EN 14385:2004	GEN3-014	n/a	SAL Laboratories Manchester	n/a

5. Operating Information

Emission Point	Process Status Load /Feedstock	Process Details	Fuel /Feedstock	Abatement System	Status of Abatement System
A2-8	Normal Operation	Full Load	n/a	Filter	In Operation

Company Name: KMK Metals Recycling Ltd
 Licence No: W0113-03
 Year: 2012, Visit No: 5
 Report No: 012-50-05

6. Monitoring Deviation

Requirements	Comments
Substances were monitored as per monitoring objectives	Yes
Substances were monitored in accordance with the monitoring stated in AG2 (Air Emissions Monitoring Guidance Note#2)	Yes
All monitoring substances were carried out as per Standard/Methods requirements.	Yes

Sampling Location Summary

Requirements	Comments
Stack Shape	Circular
Dimensions	0.8
Recommended 5 hydraulic diameters straight length before sampling plane	Yes
Recommended 2 hydraulic diameters straight length after sampling plane	No
Sufficient ports number Small stacks – 1 port <1.5m – 2 ports >1.5m – 4 ports	1 port
Appropriate port size	Yes
Suitable working platform	Yes
Safe and clean working environment	Yes

Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 5
Report No: 012-50-05

7. Annex 1

7.1. Personnel

Scientist/Technician Name	Position	Qualification	Technical Endorsements	MCERTS Number
Ewa Piatek	Technician	Level 1	TE1, TE2, TE3, TE4	MM07 799
Patrick Power	Technician	Trainee	-	MM12 1183

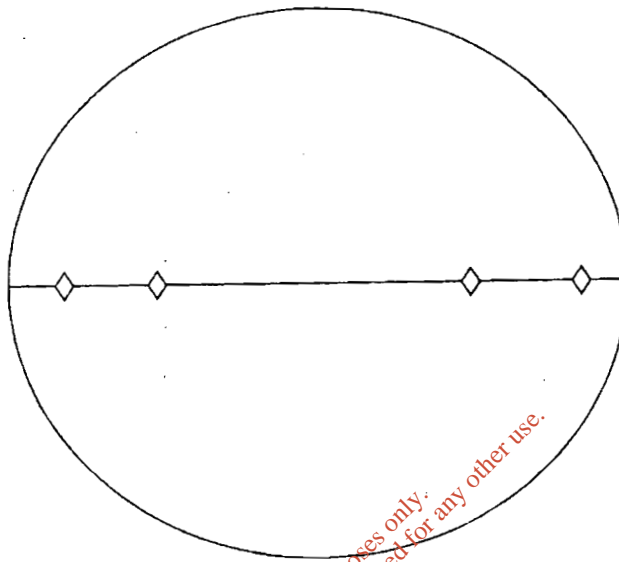
7.2. Equipment used

Equipment	GEN Equipment No
TCR	EQ050
Impinger System	EQ051
Probe	EQ052
Pitot tube	EQ053
Nozzles	EQ054
Filters	Laboratory supplied

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8. Annex 2

8.1. Diagrams of the stack



8.2. Sampling measurements

Determinant	Result	Units
Number of Ports Sampled	1	-
Number of Points Sampled	4	-
Average Velocity v'a	15.25	m/s
Average Pressure	98.284	kPa
Average Temperature	10.82	°C
Stack Diameter	0.8	m
T Reference	273	Deg K
P Reference	101.3	kPa
Isokinetic condition	Particulates -4.4 Metals -2.6 Mercury -3.0	%
Oxygen	n/a	%
Water vapour	n/a	%

Company Name: KMK Metals Recycling Ltd
Licence No: W0113-03
Year: 2012, Visit No: 5
Report No: 012-50-05

9. Annex 3

9.1. Results and uncertainty calculations, certificates of analysis

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