ANNUAL ENVIRONMENTAL REPORT 2012

KMK METALS RECYCLING LTD

WASTE LICENCE REF: W0113-03

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

REPORT PERIOD:
JANUARY 2012-DECEMBER 2012

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1.0 REPORTING PERIOD

The reporting period for this Annual Environmental Report is 1st January 2012 to 31st of December 2012.

2.0 WASTE ACTIVITIES CARRIED OUT AT THE FACILITY

The principal class of activity is:

Class 13 of the Fourth Schedule (Waste Recovery Activities) of the Waste Management Act (1996): Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.

Non Technical Description: Temporary storage and processing of waste materials at the facility prior to removal off site for further metals recovery at an alternative facility.

Consequently, other activities carried out on site include:

Class 3 of the Fourth Schedule (Waste Recovery Activities) of the Waste Management Act (1996): Recycling or reclamation of metals and metal compounds.

Non Technical Description: Collection, acceptance and processing of metallic wastes (hazardous and non hazardous including electronic and electrical wastes and liquids containing dissolved metals) as part of waste loads arriving at the facility prior to removal off site for recycling or recovery.

Class 4 of the Fourth Schedule (Waste Recovery Activities) of the Waste Management Act (1996): Recycling or reclamation of other inorganic materials.

Non Technical Description: Acceptance of plastic components and packaging as part of incoming waste loads.

Class 6 of the Fourth Schedule (Waste Recovery Activities) of the Waste Management Act (1996): Recovery of components used for pollution abatement.

Non Technical Description: Acceptance of auto catalysts, filters etc.

Class 7 of the Fourth Schedule (Waste Recovery Activities) of the Waste Management Act (1996): Recovery of components from catalysts.

Non Technical Description: Recovery of metals from catalysts in manufacturing processes (this applies to liquids and solids)

Class 11 of the Fourth Schedule (Waste Recovery Activities) of the Waste Management Act (1996): Use of waste obtained from any activity referred to in a preceding paragraph of this schedule.

Non Technical Description: Re-use of some waste materials e.g. metal drums, IBCs, cardboard boxes and textile IBC bulk bags as waste receptacles.

Class 12 of the Fourth Schedule (Waste Recovery Activities) of the Waste Management Act (1996): Exchange of waste for submission to any activity referred to in a preceding paragraph of this schedule.

Non Technical Description: Trading activities in waste management.

3.0 WASTE MANAGEMENT RECORD

3.1 Waste Received in 2012

Waste is received in the KMK facility from the following sources; civic amenity sites, commercials customers, industrial customers and transfer station waste management sites.

A summary of all waste received during 2012 is given below:

Table 3.1: Summary of Waste Received in 2012

Source of waste accepted.	Total quantities (tonnes)
Civic amenity sites	7,508.542
Commercial	7,431.087
Industrial	691.424
Transfer Stations	4,897.498
Total	**20,528.551**

It is estimated that approximately 85% of the total waste intake in 2012 was waste electrical and electronic equipment (WEEE).
A full breakdown of waste types and quantities accepted for 2012 is included in Appendix 1 attached to this AER.

The total quantity received was 20,528.551 tonnes for 2012. KMK acknowledges that this tonnage is exceeding the licence value of 20,000 tonnes. The cause of this exceeded is due to maintenance of existing commercial contracts for the management of WEEE from civic amenity sites as awarded to KMK by WEEE Ireland (WEEE compliance scheme in Ireland at present). The increase in tonnages of WEEE is therefore directly related to the general success rate of WEEE recycling by use of the civic amenity sites by the public. KMK is managing this waste in an environmentally sound manner at the waste licenced site at Cappincur, Tullamore.

Furthermore, please note that KMK through forward planning acknowledged this potential projected increase during 2009 and hence applied for the waste licence review (ref: W0113-04) on 20th October 2009. The licence review was to allow for an increase in waste acceptance to 35,000 tonnes per year. KMK are presently waiting for a decision on this review application. Due to recent developments, KMK are now confident to receive the new waste licence by end of May 2013.

3.2 Waste Despatched from the Facility for Recovery in 2012

The total quantity of waste despatched from the facility in 2012 was 19,351.69 tonnes.

A summary of all waste despatched during 2012 is included in Appendix 2 attached to this AER.

Please note that there is a carry-over of waste material from the year ending 2012 into the beginning of 2013 and this is waste material left in stock (See Appendix 3) which was 702.843 tonnes.

4.0 EMISSIONS FROM THE FACILITY

A summary and interpretation of all emissions monitoring carried out at the facility during 2012 is discussed in detail below.

4.1 Dust

Dust deposition assessment was carried out at the site from the 1st August to the 30th August 2012 by ENVIROCO Management Ltd.

The Dust Deposition Assessment Report (prepared by ENVIROCO Management Ltd) is included in Appendix 4 of this AER, and summarised below.

Figure 4.1 shows the monitoring locations, and the Bergerhoff dust measurement results obtained in 2012.

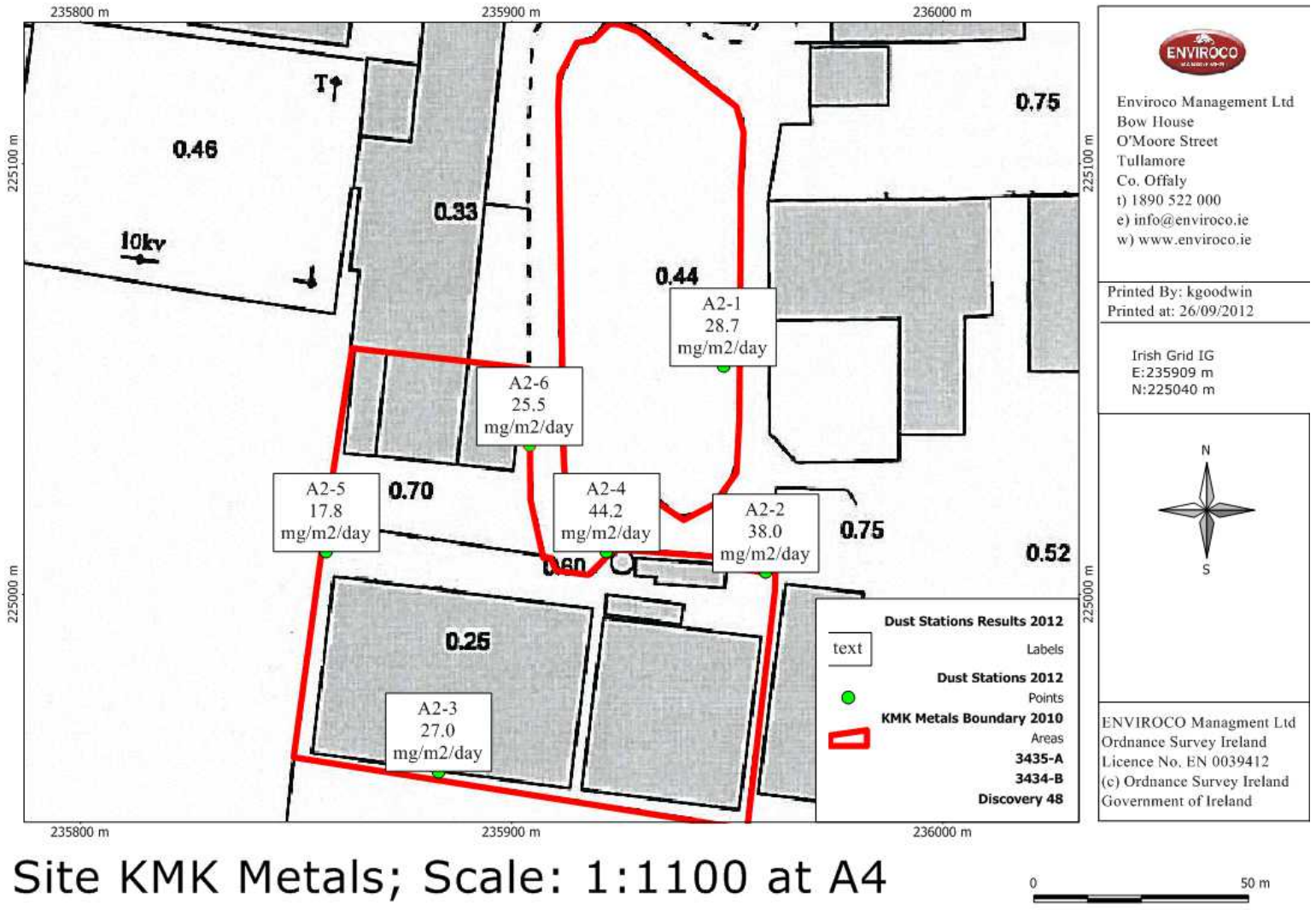


Figure 4.1: KMK Dust Monitoring Locations 2012

All dust deposition monitoring was based on the Bergerhoff method, 'Measurement of Dustfall Using the Bergerhoff Instrument (Standard Method)' VDI 2119. The Waste Licence requirements (ref. W0113-03) for dust monitoring are presented in table 4.1.1 below.
A total of six dust monitoring locations were selected (A2-1, A2-2, A2-3, A2-4, A2-5 and A2-6).

Table 4.1: Dust Monitoring Licence Requirements

Stations	Parameter ($mg/m^2/day$)	Monitoring frequency	Analysis Method/ Technique
A2-1, A2-2, A2-3, A2-4, A2-5 and A2-6	Total Dust Deposition Metal content note2	Annually note1 Annually	Standard method note3 Standard method

Note 1: During the period May to September, or otherwise specified in writing by the Agency.
Note 2: Analysis to include the following metals: Al, As, Cd, Cr, Cu, Fe, Hg, Ni, Pb and Zn.
Note 3: Standard VDI 2119 (Measurement of dustfall, Determination of dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute). Any modifications to eliminate interference due to algae growth in the gauge should be reported to the Agency.

A summary of Dust Deposition Results for 6 locations are tabulated below in Table 4.2 and Table 4.3 below:

Table 4.2: Results of Total Dust Monitoring at the Facility

Station I.D.	Monitoring Location	Irish Grid Ref.		Dust Deposition (Aug 2012) $mg/m^2/day$	EPA licence Limits $mg/m^2/day$
		Easting	Northing		
A2-1	Car Park at Fence Boundary	635955	725044	28.7	350
A2-2	Eastern boundary, beside disused portacabin	635959	725004	38.0	350
A2-3	Fence at southern boundary	635882	724955	27.0	350
A2-4	Site Entrance	635911	724993	44.2	350
A2-5	Western Boundary	635866	725002	17.8	350
A2-6	Northern Boundary	635902	725021	25.5	350

Table 4.3: Results of Metallic Species in Dust at the Facility

Parameters	Metallic analysis in dust (mg/sample)					
	A2-1	**A2-2**	**A2-3**	**A2-4**	**A2-5**	**A2-6**
Aluminium (Al)	1.642	0.842	1.028	0.500	1.534	0.650
Copper (Cu)	<0.001	0.158	0.037	<0.001	<0.001	<0.001
Arsenic (As)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium (Cd)	0.006	<0.001	<0.001	0.272	<0.001	<0.001
Chromium (Cr)	0.057	<0.001	<0.001	0.295	<0.001	0.017
Iron (Fe)	<0.001	0.263	0.222	<0.001	<0.001	<0.001
Mercury (Hg)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel (Ni)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead (Pb)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc (Zn)	1.586	0.053	1.443	0.295	<0.001	<0.001

Weather conditions can have a noticeable impact upon dust creation and dust entrainment in the air. Drier weather will increase the ambient dust on the ground and will lighten small particulates. Wind strength will determine the size of particles that can be entrained in the air and the distance they will be transported. The Met Eireann data from the Gurteen Synoptic Station for the August monitoring events show that August had higher levels of rainfall than normal, with lower temperatures than recorded at the Met Synoptic station over the last couple of years. Table 4.4 below give the annual averages for rainfall from the closest Met Eireann Synoptic Station – Gurteen College.

Table 4.4: Rainfall levels from Gurteen Synoptic Station

Date	Rainfall (mm)	Date	Rainfall (mm)
01/08/2012	2.7	16/08/2012	7
02/08/2012	0.6	17/08/2012	10.2
03/08/2012	11.8	18/08/2012	0.3
04/08/2012	6.7	19/08/2012	0
05/08/2012	3.7	20/08/2012	0
06/08/2012	3.2	21/08/2012	2.9
07/08/2012	0.1	22/08/2012	0.6
08/08/2012	0	23/08/2012	5.3
09/08/2012	0	24/08/2012	2.4

10/08/2012	0	25/08/2012	0.7
11/08/2012	0	26/08/2012	2.3
12/08/2012	9.7	27/08/2012	3.5
13/08/2012	7.4	28/08/2012	4.3
14/08/2012	0	29/08/2012	3.1
15/08/2012	14.4	30/08/2012	0

Based on the Beaufort Scale of Wind Force (see Appendix 4) it is clear that during the August event for 16 of the 30 days wind in the area was less than between 7 to 10knotts, which could be classified as a wind force of 3 (Gentle Breeze) – leaves and twigs in constant movement. There were 4 recorded incidents of between 11 to 16knotts which is classed as a moderate breeze.

In general, the wind strength was indeed stronger for this August period than the previous August period last year.

Dust monitoring was conducted during the month of August 2012. The event occurred during the end of the summer period, as required in the waste licence, the period of monitoring was a typical operational month at KMK with above average wind and rainfall.

Dust monitoring around the boundaries of the KMK site shows that all dust deposition results were below the EPA recommendation limit of 350mg/m^2/day.

It is important to acknowledge the full compliance with the EPA dust limits from KMK and the reasons for this compliance are identified as follows;

- During this August monitoring period, all site construction activities were complete and especially all concrete yard surfaces were fully finished and in use. Hence, there was no dust impact from vehicles driving on hardcore ground which typically results in dust and general dirt and clay generation.

- It is acknowledged that during periods of dry weather, KMK yard operatives routinely dampen down all internal roads and yard areas in order to prevent dust generation. This was further achieved using a dedicated mobile road sweeper at KMK which is now part of company plant on-site.

An analysis of the metallic species in all seven dust samples was also carried out over the same 30 day period using the same sampling methods as those for the total dust deposition. The sample parameters for arsenic, nickel, mercury and lead measured were all below the actual laboratory limits of detection of 0.001mg (see Table 4.3).

Zinc was detected in minute quantities at 4 stations – A2-1, A2-2, A2-3 and A2-4, cadmium was detected in minute quantities for the two stations, A2-1 and A2-4 and chromium was also detected at minute quantities for stations A2-1, A2-4 and A2-6.

Whilst Aluminium was detected at the highest concentrations out of all the metallic species these were at low levels with the highest being 1.64mg at station A2-1.

In terms of comparison of metals in ambient air samples to relevant standards where relevant, this can be only be achieved by conducting a PM10 sampling event for industrial operations (i.e. measurement of breathable dusts in the air) which metallic speciation of the samples. This sampling event is strongly health and safety orientated with emphasis on sampling methods, times, set back distances from roads and specialised equipment to be used. The regulation S.I No 58 of 2009 (Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009) covers this process. However, for the purpose of this report which is compliant with the waste licence W0113-03, PM10 sampling is not sought or required.

4.2 Stack Emission Point.

The stack emissions point at D-WEEE plant (building) was officially licensed via a Technical Amendment to W0113-03 as emission point ref: A2-8 on the 25th June 2012.

The Waste Licence requirements for stack emission monitoring are presented in Table 4.2.1 below.

Table 4.2.1: Stack Monitoring Licence Requirements

Emission point ref no.	Parameter	Monitoring frequency	Analysis Method/ Technique
A2-8	Total particulates Metals including Al, As, Cd, Cr, Cu, Fe, Hg, Ni, Pb and Zn	Monthly for 3 months and quarterly thereafter	Standard Methods

In terms of monitoring of A2-8, this was performed for the parameters listed below over five separate monitoring events during 2012;

- Airflow rate
- Total particulates
- Moisture content
- Specified metals (particulate bound and gaseous based metals)

The plant was deemed in use during monitoring, and the samples were taken as discharged from the emission stack after treatment by the bag house filter unit.

The individual monitoring reports are included in Appendix 5 and are summarised below (Table 4.2.2) in terms of dates and total particulate results obtained;

Table 4.2.2: Stack Monitoring Results 2012

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.

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 on 5th April 2013. 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 was recently installed on the air extraction line prior to the bag filter during 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 effectively ensure particulate emissions are minimal.

Therefore, stack emissions will be consistently low, of minor significance, self regulated and similar over a typical year with no seasonal changes.

4.3 Noise

The Waste Licence requirements (ref. W0113-03) for noise monitoring are presented in table 4.3.1 below.

Table 4.3.1: Noise Monitoring Licence Requirements

Stations	Parameter	Monitoring frequency	Analysis Method/ Technique
NE1, NE2, NE3, NE4, NE5, NE6	L(A)eq [30 minutes], $L(A)_{10}$ [30 minutes], $L(A)_{90}$ [30 minutes] and 1/3 Octave Band Analysis	Annually	Standard Method[Note1]

Note 1: International Standards Organisation, ISO 1996 Acoustics – Description and Measurement of Environmental Noise. Parts 1,2 and 3.

The hours of operation of KMK are between 6am-10pm Monday to Friday and 6am - 1pm Saturday (as per Waste Licence).

This monitoring event took into account the released EPA guidance document NG4 'Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities' released in April 2012. This document seeks a notable increase in the repetitiveness of monitoring during the annual event. A request was submitted to the EPA and approved, requesting the reduction in monitoring stations on site from the licensed 6 stations to 4. This alteration would enable a reasonable monitoring time on site, reduce unnecessary repetitiveness of close proximity monitoring stations and give a fair indication to the noise arising from site activities during a normal operating day.

Noise monitoring was carried out on Thursday 30th August 2012. Each monitoring location is identified on the map shown in Figure 4.3 below.

Weather conditions during the early morning were overcast, dry and cool with no perceptible wind. The later measurements were taken during cool calm and clear day, with showers threatening in the late afternoon, but no persistent precipitation.

The monitoring locations were:

NE001: Car park at fence boundary – northern boundary
NE002: Eastern boundary, beside a port-cabin
NE003: Rear of the facility buildings – Southern boundary
NE004: Adjacent the working yard area – Western boundary

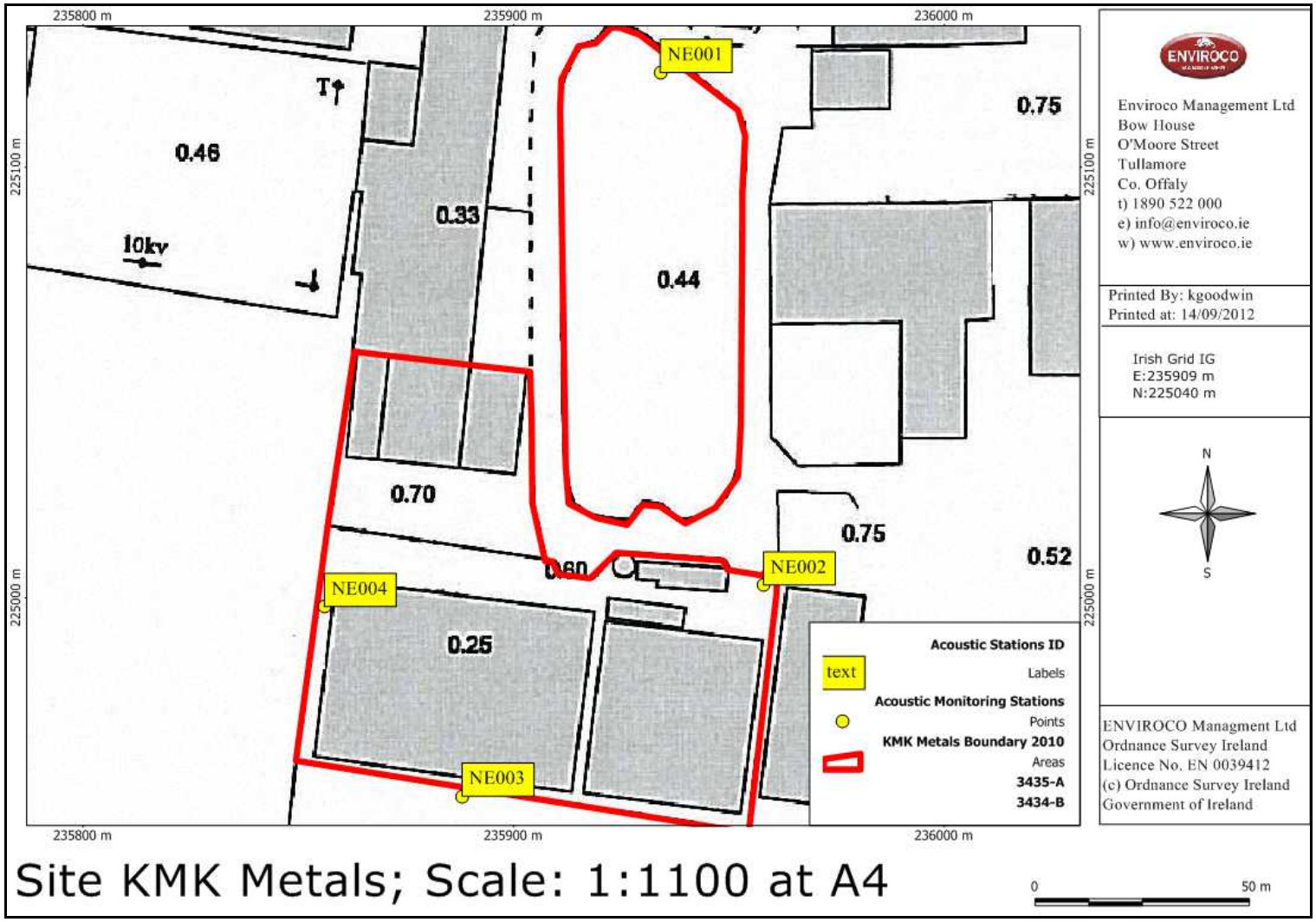


Figure 4.3: KMK Noise Monitoring Locations 2012

The complete set of noise measurement results is included in the Noise Monitoring Survey (Appendix 6). These are summarised and discussed below.

Table 4.3.2: Night Time Noise Record 15 minute measurements

Location	Start Time	L_{Aeq}	Comments
NE001	06:05	45	**Background Noise**: (06:05-06:11) No site activity audible. Trucks & cars on N52, distant dog barking, distant bird song Van being opened / closed at nearby business **General Noise:** (06:11 site forklift heard) (06:15 machinery audible on site)
NE002	06:24	52	**Background Noise**: Very distant **General Noise:** Site activities – forklifts, metal handling, plant operating (cranes), Very low hum audible from effluent treatment plant @ close proximity (100 Hz)
NE003	06:44	59	**Background Noise**: Faint **General Noise:** Forklift / small bucket locater clearing floor area at building. Hum/vibration audible from building, extraction unit audible occasional reversing alarms
NE004	07:01	65	**Background Noise**: Faint **General Noise:** Crushing and separation plant audible, reversing alarms, forklifts, dogs audible at pound
NE001a	07:20	61	**Background Noise**: Forklifts operating outside walls, N52 traffic, Truck idling at neighbouring courier's business **General Noise:** Plant & machinery at main facility (stopped 07:23), JCB loader collecting material from bay at new 'E' building
NE002a	07:39	60	**Background Noise**: Faint **General Noise:** Forklift, processing activities, reversing alarms, metal being moved, (07:51 – metal screech)
NE003a	07:59	60	**Background Noise**: Traffic on N52 audible (D3X Fan off) **General Noise:** Processing activities, Engine/compressor available in ABC Building, Material falling through filter, Filter extraction from @ D3X, Forklifts and reversing alarms
NE004a	08:16	60	**Background Noise**: Traffic on N52 (including tractor pulling trailer @ high speed) **General Noise:** D3X processing available, Forklifts audible

Table 4.3.3: Day Time Noise Record 30 minute measurements

Location	Start Time	L_{Aeq}	Comments
NE001	08:36	59	**Background Noise**: Angle grinder on/off at Robe Design adjacent station. Truck engine at couriers – moving off after 4 minutes. **General Noise:** Reversing alarm and engine noise from JCB mini-loader working in E yard. Radio audible but indistinct, 8:52 – truck starting, leaving E area
NE002	09:09	69	**Background Noise**: Faint **General Noise:** Processing activities, Forklift movements, Reversing alarms, metal/ boxes being moved, Horns sounding, Movement of plastic boxes via forklift – empty boxes bounding on lift arms
NE003	09:44	60	**Background Noise**: Very occasional birdsong **General Noise:** Compressor / engine at ABC building. Metal/items falling through extractor system at D3X. Forklifts and reversing alarms.
NE004	10:18	65	**Background Noise**: Dog pound (barking), Truck movements neighbouring skip yard **General Noise:** Processing within D3X, Reversing alarms, HGV traffic N52, Air vent, Railing rattle during wind gusts, Activity from processing started up again 10:45.
NE001a	10:54	63	**Background Noise**: Faint **General Noise:** Maintenance on railing, Generator (92db) – label on generator, Talking between workers, Angle grinder, Reversing sirens (faintly), Faint hum machinery, Traffic movement in carpark & outside
NE002a	11:29	68	**Background Noise**: Faint **General Noise:** Traffic movement – forklifts in and out, lorries outside, reversing sirens, Processing – hammering noises, Building behind offices (ABC), Hanger style building (E), Manual movement of containers (rolling over concrete), Beeping 11:48 – lorry
NE003a	12:03	61	**Background Noise**: Faint **General Noise:** Processing inside building, Extraction noise material falling inside, Reversing alarms – forklifts, Hum of building D3X
NE004a	12:36	66	**Background Noise**: Dog pound – barking, Agricultural machinery on N52 & HGVs, **General Noise:** Processing inside D3X building, Faint hum from building, Reversing alarms
NE001b	13:10	65	**Background Noise**: Faint **General Noise:** Talking of workers, Traffic – construction of railing around carpark, 'Arcgen' mobile generator (LWA 92 dB), Metal gate dragged on concrete, Long reversing alarm @ site c 45 seconds, Mechanical Bolter working on gate – fixing railing to concrete wall)
NE002b	13:43	66	**Background Noise**: Faint **General Noise:** Reversing alarm, Forklift movements, Processing @ ABC, Truck engine idling @ D yard area, Truck movement in yard areas

Location	Start Time	L_{Aeq}	Comments
NE003b	14:59	55	**Background Noise**: Traffic on N52 audible **General Noise:** Extractor fan working, Forklift & movements audible, Compressor / generator operational in ABC building,
NE004b	15:33	57	**Background Noise**: Faint **General Noise:** Plant operating inside D3X, Road traffic, fan emissions, Majority of site activities stopped by 3:45.

Noise monitoring was carried out between the hours of 6am and 4 pm.

Noise sources from the plant, audible at the site boundaries have been identified as:

- Vehicles entering/leaving the site
- Personnel entering/leaving buildings
- Unloading and loading of trucks with waste materials
- The movement of fork lift trucks in the process areas
- Reversing alarms from forklift trucks
- Operation of the baler unit for Large Household Appliances (LHA).
- Operations from construction of a steel structure at a neighbouring industrial unit.

During the early morning measurements (prior to 8am) noise levels varied from a $L_{Aeq(15\ minute)}$ of 45-65 dB, with the highest levels occurring to the west at station NE004 (65 and 60dB). The night-time monitoring shows an incremental increase in noise values from 6am to a L_{Aeq} peak at 7am at station NE004. From 7am to 8am the values reduce and become relatively similar at all 4 monitoring stations, with a $L_{Aeq(15minute)}$ range from 60-61 dB. All monitoring stations are site boundary.

The day-time measurements (8am to 4pm) show a variation in $L_{Aeq(30\ minute)}$ of 55 to 69 dB, with the higher values recorded on the western stations. NE002 (66-69 dB), located adjacent the site main offices with views of work sheds A,B&C and movement of forklifts and vehicles on site working areas.

Station NE001, located on the northern boundary, experienced construction/maintenance activities during the day-time monitoring event. These activities centred around the finishing works on the new boundary wall. Activities included the movement of metal railings and gate, use of a mobile generator, hammering and use of hand tools. Site activities at this station were audible but typically faint compared to these local actions. $L_{Aeq(30\ minute)}$ values ranged from 59-65 dB at NE 001 during the day.

Stations NE 003 and 004 both show a noticeable drop in noise levels on the third measurement period, occurring after 3pm. This drop off in levels corresponded to a notable reduction in activity within the site work buildings, and movement of vehicles within the facility yards. $L_{Aeq(30\ minutes)}$ between 3 and 4pm ranged from 55-57 dB.

Stations NE 003 and 004 show noise levels between 9:45 to 1pm of a $L_{Aeq(30\ minute)}$ ranging from 60-66 dB. During these monitoring events full site activity was noted at these stations.

The noise generated during these operations is not likely to be a source of disturbance to neighbouring properties as it is known that noise dissipates over distance, and for point source emissions, there is a decrease in 6dB(A) for every doubling in distance away (see table 2.3.1 below).

Table 4.3.4: Attenuation of Noise over Distance for point source emissions e.g. industrial sources

Distance m	Noise level dB	Noise Level dB
10	70	65
20	64	59
40	58	53
80	52	47
160	46	41

The noise levels on site range from a night-time $L_{Aeq\ (15\ minute)}$ of 45 dB to a $L_{Aeq(15\ minute)}$ of 65 dB. This is equivalent to the noise arising from roadside traffic at 15 meters. The KMK facility is located within an urban zone of acoustic influence. There are no notable housing estates within close proximity to the Cappincur Industrial Estate, nor is there identified houses positioned at significant distance from local road infrastructure, that would bring said dwellings closer to the Cappincur Industrial Estate. It is therefore reasoned that dwellings located along the local road to the north experience noise from the urban traffic movements in/out of Tullamore Town, vehicle movements associated with the Cappincur Industrial Estate, and the daily movement of traffic on the National N52 by-pass road of Tullamore, located to the west of the Cappincur Industrial Estate.

Approximate distances from the peak $L_{Aeq\ (30minute)}$ station to the closest dwelling, located northeast, is 240metres. Distances from the closest operational zones, the E-Area, located along the northern section of the site, is approximately 200m to the closest dwelling, again located to the northeast.

In relation to 1/3 Octave analysis (analysing the recorded sound pressures to identify if tonal features are present) this was carried out on the same day. NG4 guidance document states that tonal elements can be identified by the variation in one 1/3 octave band to its neighbouring two bands by a minimum value. This minima varies depending upon the frequency band, mid and higher frequency tones been more audible than lower frequency bands. The variation is given as:

- 15dB in low-frequency one-third-octave bands (25Hz to 125 Hz)
- 8dB in middle-frequency one-third-octave bands (160Hz to 400Hz)
- 5dB in high-frequency one-third-octave bands (500Hz to 10,000Hz)

A single tone was recorded by the sound level meter on site. This tone was only found at one station, NE001, and only during one measurement at 7:20. The only item identified as tonal by the acoustician at this time was a truck engine ticking over outside the boundary walls of the KMK facility. This tone was not detected at any other time, or at any other station. The actual sound pressure level of the tone is low enough, that it is unlikely that dwelling houses, located over 150 meters from this station, would find it audible, due to the attenuation of the sound over distance.

4.4 Surface Water

Surface water samples were taken directly from the outlets CX and DX for all parameters applicable under the licence limits.

Table 4.5: Discharge Monitoring Summary

Date	Sample taken		Laboratory	Lab Reference
	CX	DX		
9th Feb 12	Yes	No	BHP	102429
12th Jun 12	Yes	Yes	BHP	104472.1 104472.2
25th Sept 12	Yes	Yes	BHP	106086.2 106086.1
19th Dec 12	Yes	Yes	Alcontrol Geochem Ltd	208011

The test certificates are included in Appendix 7 of this AER.

A summary of Surface Water Results are tabulated below in Table 4.6

Table 4.6: Surface Water Monitoring Results

Date	**09-02-2012**		**12-06-2012**		**25-09-2012**		**19-12-2012**		**Trigger Levels**	**Action levels**
Parameter	**CX**	**DX**	**CX**	**DX**	**CX**	**DX**	**CX**	**DX**		
Suspended Solids (mg/l)	4	-	10	65	17	121	8.5	254	50	100
Conductivity (µS/cm)	162	-	1586	608	373	405	558	1400	1000	1000
Ammonia (mg/l)	0.57	-	5.57	3.25	5.9	2.19	14.2	<0.2	0.2	4.0
pH (units)	7.31	-	7.34	7.36	7.59	7.92	7.83	7.88	6.0 – 9.0	5.5 – 9.0
COD (mg/l)	23	-	12	36	<1	105	45.5	243	40	40
Iron (mg/l)	<0.001	-	<0.001	0.018	0.028	0.056	0.0211	0.321	0.2	2.0
Arsenic (mg/l)	<0.001	-	<0.001	<0.001	<0.001	<0.001	0.0005	0.00177	0.05	0.10
Zinc (mg/l)	0.002	-	0.019	0.204	0.038	0.032	0.174	0.0905	3.0	5.0
Chromium (mg/l)	<0.001	-	<0.001	<0.001	0.051	0.039	0.00144	0.00208	0.032	0.05
Nickel (mg/l)	<0.001	-	<0.001	<0.001	<0.001	<0.001	0.0107	0.0201	3.0	5.0
Aluminium (mg/l)	0.129	-	0.024	0.086	0.128	0.156	0.0066	0.0261	3.0	5.0
Lead (mg/l)	<0.001	-	<0.001	<0.001	<0.001	<0.001	0.00531	0.0088	0.05	0.05
Mercury (mg/l)	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	0.000035	<0.00001	0.00007	0.001
Mineral Oil (mg/l)	<0.010	-	<0.01	<0.01	<0.01	<0.01	2.08	4.13	1.0	2.0
Chloride (mg/l)	17.9	-	322.9	79.7	72.7	85.9	117	361	None proposed	None proposed

Full results available in the Certificate of Analysis enclosed with this AER.

- = not measured
NRG: No reference given
* Limits for surface waters / rivers i.e. EPA Surface Water Regs (1989) mandatory value (A3 water). Please note that these levels are also now the 'Action Levels' as adopted in the May 2010 TRIGGER & ACTION LEVELS FOR SURFACE WATER DISCHARGES Report– see notes on interpretation.
** Limits established by virtue of best practise in determining mineral oils content run-off from interceptors to surface waters.

Interpretation of Quarterly Analysis of Discharges in 2012

The licence limits set for the surface water discharge to drain from the facility (CX and DX) are established under the May 2010, TRIGGER & ACTION LEVELS FOR SURFACE WATER DISCHARGES report as previously submitted to the EPA.

In terms of discharges from CX outlet, throughout the four Quarterly sampling events, there were elevated readings for ammonia with a high conductivity reading for one quarter also. There was also an isolated event of slightly elevated COD, chromium and mineral oils in separate sampling events but these are determined to be not reoccurring during the year. The elevated levels were also not significant.

The increase in ammonia levels was thoroughly investigated throughout 2012. Initially, it was thought that increased ammonia was sourced to an issue regarding incoming battery boxes on site. It was believed that occasionally a battery box may have been delivered to KMK from an offsite location with a portion of rainwater inside (if it had been stored incorrectly outside) and that this rainwater may have been emptied onto the yard. Although the contents of the boxes in such cases is primarily rainwater, there was the potential for leaked/residual battery fluids also present (ammonium chloride salt). This was proposed as an explanation for the increases in ammonia, chloride and indirectly the conductivity levels on occasion. Awareness training of the site supervisor responsible for the yard in question, and operatives working in that area, took place to ensure staff are aware of the importance of preventing any potentially contaminated liquids from entering the KMK drainage network.

However, on 15th January 2013, a new possible source of ammonia was identified when the issue was discussed at a Management Meeting. It was reported that there was a collapsed sewerage pipe outside the operatives canteen which, on occasion, when blocked or during particularly wet periods, may cause over-ground flow of contaminated water to enter the CX Interceptor drainage network. The collapsed pipe was repaired within five working days on the 22nd January 2013.

In terms of discharges from DX outlet, throughout the 4 Quarter sampling events in 2012, there were elevated fluctuations in conductivity, suspended solids, ammonia (during two quarters) and COD. There was also a slightly elevated level of mineral oil and iron in the final quarter. (KMK wish to mention at this point that the results obtained for Quarter 1 of 2013 were fully compliant for DX).

The elevated suspended solids were due to the wet weather conditions. This resulted in clay/small debris deposits being washed into the interceptor along with higher volumes of yard water which decreased the settlement retention time inside the interceptor. This resulted in discharges with elevated suspended solids during these heavy rainfall events.

The increases in ammonia levels for DX was considered to be an issue regarding incoming battery boxes on site. Thus as explained previously; occasional battery boxes that contain rainwater off-site would be emptied at KMK. Although the contents of the boxes in such cases is primarily rainwater in the box, there is a probable risk that leaked/residual battery

fluids are also present (ammonium chloride salt). This was proposed as an explanation for the increases in ammonia, chloride and indirectly the conductivity levels on occasion at DX.

It is important to note that both interceptors at CX and DX are emptied by a vacuum tanker usually (at least) once per year (on the recommendation of Gordon Mitchell) and therefore there is no actual constant discharge from this interceptor as it remains empty for a period until it reaches capacity again. Furthermore, a maintenance contract is in place with an outside company to periodically visit KMK and inspect the interceptors and validate their operations so as to ensure that they are working correctly and efficiently.

Aside from the quarterly monitoring, it is important to note the conclusions of a report on an investigation of impacts to the land drain from CX and DX completed in August 2011 at KMK which included sampling up-stream and down-stream of the discharge outlets CX and DX.

The report concluded that there is little to no reduction in the water quality of the land drain downstream of the discharge points CX and DX.

Conversely, the quality appears to improve somewhat downstream of the KMK discharge for most parameters. This is due to the following reasons;

- The quality of the discharges at CX and DX are controlled and treated by the facility interceptor units. There interceptors are maintained and operated correctly.
- All clean roof rain water run-off from the buildings (apart from buildings A,B & C which are flowing to CX outlet) are being discharged to the land drain directly. This clean water is diluting any possible contamination within the drain body. Similarly the clean roof rain water run-off from buildings A, B & C are diluting down the contamination in the CX outlet.
- The volume and flow of water being discharged from KMK via CX and DX discharges is controlled and partially attenuated by the additional sampling/holding chamber at the outlets but also more influenced by climatic rainfall.
- The impact from the CX and DX discharges is quite negligible in terms of increases in all parameters on the day of investigation.
- Taking into consideration the average daily rainfall for August i.e. 2.4mm, this would increase the flows and also the loadings from CX and DX by virtue of an increase in volume being discharged from the outlets. This also is not considered as a significant impact to the drain due to the fact that an increase in rainfall also equates to an increase in clean roof water run-off being discharged to the land drain and KMK have considerably increased the roof areas on-site in the past few years.

Based on the quarterly analysis data, nature of activity at the site and the drain impact investigation, it is considered that KMK discharge is not resulting in a significant negative effect on the land drain and the site interceptors are operating adequately (removal of silts, metals, physical debris etc).

The reports for Q1 of 2013 show fully compliant results for DX (after implementation of improvements identified during 2012) and that issues relating to CX are not due to material acceptance or processing at KMK, rather the necessary upgrade to the WWTS, which is due to happen as a result of Planning Permission for same, final grant in 4th April 2013.

4.5 Groundwater

Both GW1 and GW2 wells are tapped on-site. GW1 well is used as the main water source on-site for domestic supply and therefore there is a good draw on this source throughout the year. GW2 well is not used routinely and is only used on occasion to supplement the rainwater harvesting tanks on-site when they become empty. Therefore in order to adequately flush out the well head, this tap was allowed to run and fill a 1,000litre IBC two days before the sampling occurred. The time between well flushing and sampling was deemed adequate for full recharge of the supply at GW2.

On the day of sampling, both GW1 and GW2 tap heads were cleaned and sterilised using alcohol wipes (as required for microbial sampling). Each tap head was then flamed briefly using a lighter to eliminate any residual alcohol where present. The taps were then allowed to run with water for some minutes prior to water sampling.

Two groundwater samples (GW1 and GW2) were taken in duplicate from the KMK site on the 29th November 2012 and sent to two separate laboratories for analysis.

The test certificates are included in Appendix 7 of this AER.

A Summary of Groundwater Results is tabulated below in tables 4.7

Tables 4.7: Groundwater Monitoring Results

Results from BHP labs

Parameter	**GW1**	**GW2**	**EC Drinking Water Guideline SI. 278/2007**	**Groundwater Threshold Values EC Environmental Objectives (Groundwater) Regulations, SI 9/2010**
Conductivity @ 20C (µS/cm)	557	558	2500	800 - 1875
pH (pH units)	7.55	7.32	NRG*	6.5-9.5
E. Coli (cfu/100mls)	<1	<1	0	0
VOCs (EPA 524.2) List I/II Screen (µg/l)	<10	<10	NRG*	NRG except for following; 1,2 – Dichloroethane – 2.25(µg/l) Vinyl chloride – 0.375

				(µg/l) Benzene – 0.75 (µg/l) Total for Trichloroethene & Tetrachloroethene – 7.5 (µg/l)
Total Nitrogen (as N) (mg/l)	<1	13	50	NRG*
Chloride (mg/l)	12.84	13.08	250	24 – 187.5
Nickel (µg/l)	<1	1	20	15
Lead (µg/l)	11	<1	25	18.75
Iron (µg/l)	151	<1	200	NRG*
Chromium (µg/l)	<1	<1	50	37.5
Arsenic (µg/l)	<1	<1	10	7.5
Aluminium (µg/l)	114	117	200	150
Mercury (µg/l)	<1	<1	1	0.75

NRG = No Reference Given.
EC Drinking Water Regs. S.I. 278/2007 and EC Groundwater Regs. S.I. 9/2010 were used here in the absence of any limits specified in the waste licence.

Results from Alcontrol labs

Parameter	**GW1**	**GW2**	**EC Drinking Water Guideline SI. 278/2007**	**Groundwater Threshold Values EC Environmental Objectives (Groundwater) Regulations, SI 9/2010**
Conductivity @ 20C (µS/cm)	537	479	2500	800 - 1875
pH (pH units)	8.17	8.39	NRG*	6.5-9.5
E. Coli (cfu/100mls)	<1	<1	0	0
VOCs (EPA 524.2) List I/II Screen (µg/l)	<1	<1	NRG*	NRG except for following; 1,2 – Dichloroethane – 2.25(µg/l) Vinyl chloride – 0.375 (µg/l) Benzene – 0.75 (µg/l) Total for Trichloroethene & Tetrachloroethene – 7.5 (µg/l)

Total Nitrogen (as N) (mg/l)	<1	<1	50	NRG*
Chloride (mg/l)	12.6	13	250	24 – 187.5
Nickel (µg/l)	2.3	13.9	20	15
Lead (µg/l)	0.346	0.15	25	18.75
Iron (µg/l)	<19	<19	200	NRG*
Chromium (µg/l)	3.21	3.24	50	37.5
Arsenic (µg/l)	0.238	8.98	10	7.5
Aluminium (µg/l)	<2.9	<2.9	200	150
Mercury (µg/l)	<0.01	<0.01	1	0.75

NRG = No Reference Given.
EC Drinking Water Regs. S.I. 278/2007 and EC Groundwater Regs. S.I. 9/2010 were used here in the absence of any limits specified in the waste licence.

Interpretation of Results for November 2012

Only the arsenic metal parameter highlighted in red exceeded the recommended guideline limits set by EC Groundwater Regs. S.I. 9/2010 for sample GW2 but did not exceed the limit as set in the EC Drinking Water Guideline SI 278/2007. The level for arsenic as recorded by Alcontrol labs was 8.98(µg/l). In determination of the significance or otherwise of the arsenic level in GW2, it is important to consider that the other metallic species i.e. lead, iron, chromium, nickel, mercury and aluminium were below both the Drinking Water guidelines and the Groundwater Threshold Values EC Environmental Objectives (Groundwater) Regulations, SI 9/2010. Therefore there are no artificial or manmade sources of metallic contamination entering the groundwater due to the lack of these metals in significant detectible quantities. Hence, the presence of arsenic can be attributed to a laboratory detection anomaly. This is further supported by the fact that no elevated arsenic levels were detected by BHP labs

All of the parameters tested for in samples GW1 and GW2 as recorded by BHP labs were within the recommended guideline limits for both the EC Drinking Water Regs. S.I. 278/2007 and EC Groundwater Regs. S.I. 9/2010.

There were no VOCs detected in both GW1 and GW2 by both laboratories. It is important to also note the improved limit of detection for VOCs of 1(µg/l) for Alcontrol Labs.

5.0 ENERGY CONSUMPTION AND COST

Electricity, green diesel and kerosene are used at the facility. The following tables summarise the electricity and fuel consumption and CO_2 emission at the facility from 2011 to 2012 inclusive and for comparison purposes.

Table 5.1: Breakdown of the Energy Consumption for the Year

	Consumption, kWh*			
	2011[note1]	**%**	**2012[note2]**	**%**
Electricity	82,969	11.56	392,045	37.2
Kerosene	34,746	4.84	38,178	0.7
Green Diesel	600,253	83.60	622,145	59.1
Total	**717,969**	**100**	**1,052,368**	**100**

*Energy conversion factors: kerosene 10.4kWh/l and green diesel 10.8kWh/l.

Table 5.2: Breakdown of the Energy Costs for the Year

	Cost, €			
	2011[note1]	**%**	**2012[note2]**	**%**
Electricity	20,092	27.42	59,926	53
Kerosene	2,871	3.92	3,417	3
Green Diesel	50,311	68.66	49,967	44
Total	**73,274**	**100**	**113,310**	**100**

Table 5.3: CO_2 Emissions for Year

	CO_2 emissions, tonnes*			
	2011[note1]	**%**	**2012[note2]**	**%**
Electricity	64.4	27.78	304.2	63.6
Kerosene	8.9	3.85	9.8	2
Green Diesel	158.5	68.37	164.2	34.4
Total	**231.78**	**100**	**478.28**	**100**

*Energy to Carbon conversion factors: electricity 0.776kg CO_2 /kWh, Kerosene 0.257 kg CO_2 /kWh and Green Diesel 0.264 kg CO_2 / kWh

Note 1 – energy usage at KMK with transfer operations only for small household appliances.

Note 2- energy usage at KMK with the incorporation of D-WEEE plant building equipment i.e. the Smasher process for the on-site recovery of small household appliances at KMK. This automated equipment process gives further recovery rates to WEEE arriving at KMK.

In summary, the following trends are noted;

- Total electricity usage (consumption in kWh) increased significantly from year 2011. The increase was by over 25% for year 2012. The reason for this increase in electricity usage was the incorporation of D-WEEE plant building equipment i.e. the Smasher process into the recovery activity at KMK. There are significant environmental savings from the system installed by KMK:
  - The new technology installed at KMK is more energy efficient than other similar systems and therefore the overall energy consumption when the entire process is taken into account is significantly reduced.
  - KMK's process enables treatment of material in Ireland which otherwise would have been exported and treated outside of Ireland, therefore supporting Irish Businesses and creating employment in the local area.
  - The treatment process enables recovery of approximately 1 tonne of batteries per month, which otherwise would have been lost from Ireland's National Recycling Targets.
  - Processing is carried out nearer to where the WEEE was generated, therefore saving on fuel consumption and transport cost, and post-process material (which is exported) is granulated rather than whole, therefore the number of loads transported (and associated fuel consumption / carbon footprint) is significantly reduced.

- Despite the increased processing at KMK, there was only a slight increase in Green Diesel and kerosene usage in 2012 when compared to the previous 2011 reporting period.

- The costs of resources (€) was significantly more in 2012 compared to 2011.

- There was a net increase in CO_2 emissions in 2012 compared to 2011 by virtue of the increase in energy consumption on-site mostly attributable to the increase in electricity usage.

6.0 MOBILE BUNDS ASSESSMENT

There were no bund assessments carried out during 2012. KMK did request the assessments during Q3 of 2012 by ENVIROCO with the intention that it would be included in the AER for 2012. However, due to an oversight by ENVIROCO the bund assessments were not carried out. A full assessment of the bunds was completed by Nally Environmental in February 2013 and will be reported in the AER for 2013 next year. There were no bund failures noted.

7.0 INCIDENTS SUMMARY

There were five reportable incidents during 2012 at the facility, summarised below

Table 7.1: Incidents Report Table during 2012

Ref	Incident date	Incident cause/description	Actions
1	9th February 2012	Breach of Trigger levels only (self imposed ELVs) for discharge outlet at CX. Elevated levels for CX – ammonia as NH_3 (0.57mg/l)	Following a brief meeting, it was agreed to continue with the practise whereby any liquids / residues from battery bins must be decanted / contained in appropriate containers, labelled and stored in the B Bund as waste liquid for safe disposal i.e. collection by Enva. In addition, it is planned to carry out an ammonia concentration test on the groundwater supply at GW1 which is used on occasion to dampen down the concrete yard areas. This will verify if ammonia is present or not within the groundwater and therefore may identify a possible contamination source
2	10th February 2012	Breach of permitted waste tonnage accepted to the facility for the year ending 2011. Permitted tonnage is: 20,000 tonnes Actual tonnage accepted: 20,975.948 tonnes	A waste licence review application is pending approval during 2012 and now into 2013 subject to planning permission (a planning application was submitted to OCC in 2012) and the final grant was secured in 4th April 2013. It was also agreed to monitor waste intake in the final quarter of 2012 to ensure no repeat occurrence.

Ref	Incident date	Incident cause	Actions
3	12th June 2012	Breach of Trigger & Action levels (self imposed ELVs) for certain parameters concerning surface water discharges from CX & DX outlets. Elevated levels of grab samples as follows; CX – ammonia as NH_3 (5.57mg/l) - Conductivity (1586 µS/cm) DX – ammonia as NH_3 (3.25mg/l) - Suspended solids (65mg/l).	The procedure to ensure liquids / residues from battery bins are decanted / contained in appropriate containers, labelled and stored in the B Bund as waste liquid for safe disposal i.e. collection by Enva was reviewed and re-communicated on-site. Samples were taken from these bins when arriving on-site for ammonia and chloride to verify levels as an investigation measure (see ref 4 below for outcomes). An ammonia concentration test on the groundwater supply at GW1 was carried out in April 2012 and reported. The results show no ammonia contamination evident. Further checks were carried out on yard gullies leading to the interceptor at D to ensure suspended solids were further controlled.
4	25th September 2012	Breach of Trigger & Action levels (self imposed ELVs) for certain parameters concerning surface water discharges from CX & DX outlets. Elevated levels of grab samples as follows; CX – ammonia as NH_3 (5.9mg/l) - chromium (0.051mg/l) DX – ammonia as NH_3 (2.19mg/l) - suspended solids (121mg/l). - COD (105mg/l) - chromium (0.039mg/l)	Investigation of ammonia and chloride levels of water contained in some battery boxes occurred via sampling of liquid on the 30th August 2012. The results showed that both conductivity and ammonia levels were high in this liquid and so indicated a possible source of surface water entering the interceptor at C and D areas. KMK enforced procedure relating to these liquids to be contained on-site for off-site disposal. This involved housekeeping enforcement to ensure the liquids were collected, drummed and sent off-site for appropriate treatment. No specific corrective actions were taken for chromium as the slightly elevated levels were considered anomalous. Further maintenance of the gullies and interceptor at D were taken to ensure acceptable levels of suspended solids and COD would occur at the next sampling event.

5	19th December 2012	Breach of Trigger & Action levels (self imposed ELVs) for certain parameters concerning surface water discharges from CX & DX outlets. Elevated levels of grab samples as follows; CX – ammonia as NH_3 (14.2mg/l) - COD (45.5mg/l) - Mineral oils (2.08mg/l) DX – conductivity (1400 µS/cm) - suspended solids (254mg/l). - COD (243mg/l) - Iron (0.321mg/l) - Mineral oils (4.13mg/l)	A new possible source of ammonia was identified after a management meeting and site inspection on 15th January 2013 as being a collapsed sewerage pipe outside the Operatives Facilities, which gets blocked on occasion and causes over ground flow to CX Interceptor. This pipe section was repaired on 22nd January 2013 with an expectation of reduced ammonia levels thereafter. In relation to suspended solids, COD, iron and mineral oils, corrective actions included; (1) the interceptors were maintenance inspected on 23rd August 2012 and 30th October 2012, and desludged on 5th December 2012 by Enva. (2) Further housekeeping measures to ensure waste materials were not left on yard areas were forced on-site. This included removal of baled steel materials that were temporarily stored outside around this period. (3) Gullies being inspected on a weekly basis and emptied as necessary from preventing the level of silt in gullies from building up to pipe entry level.

In terms of future incident notifications for 2013 onwards at the facility, these will be addressed in a timely manner and reported using the newly agreed ALDER online reporting portal system as adopted by the EPA.

8.0 DEVELOPMENT WORKS

8.1 Development works in 2012

KMK Metals proceeded with ongoing development at their facility throughout 2012.

The details are summarised as follows:

- The final commissioning of E area was completed in 2012 including the construction of an ESB sub-station at E. Other developments included; Surface infrastructure for staff and visitor car park (concrete type), access route (concrete road) through E area, second weighbridge installation and surfacing of remaining 50% of E area yard (concrete type). Installed attenuation tanks and interceptor unit for surface water run-off from surfaced areas at E area via drainage gullies.
- Installation of in-situ pre-cast concrete wall with palisade fence top sections for the boundary of E area including new sliding entrance gates.
- A replacement of the boundary wall and piers at front of site (along original entrance at C and D areas) was completed.
- Installation of an e-Car Charge Point for private use

8.2 Proposed Development for 2013

The following development works are proposed for 2013;

- The existing on-site waste water treatment plant (Biocycle type) and associated percolation area will be replaced with a new superior waste water treatment system (Molloy Precast type) with associated tertiary sand polishing filter unit. The discharge will change from percolation to ground to direct discharge of treated effluent to the existing land drain along the west boundary of the site. This new proposal is planning approved under permission ref: 12/250 as granted in 28th March 2013. Similarly, this proposal is also being considered by the EPA as part of unsolicited further information to supplement the waste licence application W0113-04.

- D-WEEE plant building; indoor development improvements will include the installation of a cyclone abatement plant on the air extraction line prior to the bag filter. This will further control emissions via A2-8.

- Indoor development (at a location to be decided) regarding the installation of an approved new WEEE treatment process for dismantling of Flat Panel Displays (LCD TV's).

9.0 ENVIRONMENTAL OBJECTIVES AND TARGETS

9.1 Progress in 2012

A list of objectives and targets and their current status is included below in table 9.1 and are regulated by the company IMS. Most of the scheduled objectives and targets were achieved in 2012.

Table 9.1: Environmental Objectives and Targets for 2012

Objectives	Target	Time Scale	Responsibility	Status
1] E Area - continual development phases for completion	Resurfacing of E Area, including car park, access route and all remaining areas.	June 2012	Kurt & Max Kyck. T. Cunningham	Complete
	Repairs, maintenance and modifications to the palisade fence boundary of E area including new sliding entrance gates.	June 2012	As above	Complete
	Install attenuation tank and interceptor unit for surface water run-off from surfaced areas.	April 2012	As above	Complete
	Install Second Weighbridge	May 2012	As above	Complete
	Weighbridge software integration on both units	June 2012	As above	Complete
2] Site Improvements	Upgrading of the Biocycle Soak Away	July 2012	As above	Not started Subject to planning permission
	Replacement of boundary wall and piers at front of site (along original entrance)	June 2012	As above	Complete
3] WEEELABEX	Sub Gap analysis of WEEELABEX requirements	June 2012	A. Rust	Complete
4] IMS	Closure of all NSAI Audit Findings	June 2012	A. Rust	Complete

Objectives	Target	Time Scale	Responsibility	Status
	Re-Certification to ISO 14001:2004 by NSAI Audit	Sept. 2012	AR	Complete
	Maintenance of ISO 9001:2008 and OHSAS 18001:2007	Sept. 2012	AR	Complete
5] Training	Internal Training programme for all Site Supervisors	Ongoing	M. Kyck	Complete
	Formal training on Supervisor Skills for all Site Supervisors	May 2012	M. Kyck	Complete
6] Auditing	Devise weekly walkabout template (internal audit style) & conduct weekly Audits thereafter	March 2012	A. Rust	Complete

9.2 Schedule for 2013

Any objectives and targets listed above which have not been completed by end 2012 will be carried forward to 2013.

A summary of the new scheduled objectives and targets for the year ending 2013 is listed in table 9.2 below.

Table 9.2: Environmental Objectives and Targets for 2013

No	OBJECTIVES	TARGETS	STEPS TO ACHIEVE TARGET	Timescale	Responsibility	Status
1	Improve water quality	Fully compliant Ammonia results on at least two occasions from CX by December 2013	Initiate a thorough investigation of the sources of ammonia contamination in CX discharge.	March	Amy Jackson	Complete
			Confirm the source of ammonia contamination.	End March	Niall Nally	Complete
			Initiate improvement measures: - clean roof gutters, remove any potential sources of contamination - upgrade KMKs Waste Water Treatment System (WWTS)	May-June	Kurt Kyck, Max Kyck	In Progress
			Repeat sampling to confirm improved ammonia levels once the new WWTS is commissioned	July-Sept	Niall Nally	Not started
2	Improved control of noise emissions during early morning and late night operating hours	5% reduction in average ambient noise when compared to 2012 monitoring results, during night-time hours.	Review previous 2012 noise report.	March	Kurt Kyck, Niall Nally	Complete
			Hold internal review and engage with Cappincur residents' spokesperson on-site and discuss noise emissions.	March		Complete
			Instigate improvement measures by agreement of Management e.g. Community Noise Control Policy for noise reductions during priority day/night hours	March	Max Kyck	Complete
			Monitor effectiveness of controls by scheduled environmental noise monitoring event in 2013.	May-July	Niall Nally	Not started
3	Investigate opportunities for improved waste management for waste arising from the offices and canteen	20% improvement by diverting waste from general waste bin to recycling bin	Conduct a base line waste management audit for wastes generated by the canteen and offices	May	Amy Jackson	Not started
			Present findings of the Audit to Management and agree improvements based on reduce-reuse-recycle principals	May	Management Team	Not started
			Implement improvements	June	Max Kyck	Not started
			Conduct a repeat Waste Management Audit to verify improvement	September	Amy Jackson	Not started

A summary of the new scheduled environmental work programmes for the year ending 2013 is listed in table 9.3 below.

Table 9.3: Environmental Work Programmes for 2013

Aim	Objectives	Time Scale	Responsibility	Status
1. Develop a new process employing BATRRT for LCD Television dismantling	Research into new technology for on-site dismantling of LCD flat panel displays, to comply with BATRRT.	Jan 2013	Kurt Kyck	Complete
	Decide on new technology; submit a request for authorization from EPA for same. Process EPA decision thereafter.	Mar 2013	Kurt Kyck, Niall Nally	Complete
	Install new LCD technology at KMK and commission same.	April 2013	Kurt Kyck, Max Kyck	Commissioned
2. Maximise recovery of fractions from WEEE Mill and minimise dust	Investigate and install a new process (Sieve and Cyclone system) in the WEEE plant to maximise recovery of fractions by size, including dust containing recoverable metals	March	Kurt Kyck, Enda Thornton	Complete
	Commission new systems and monitor effectiveness.	April	Enda Thornton	In Progress
3. Review options for improved Energy Efficiency / Sustainability (if appropriate) at KMK	Engage with the Sustainable Energy Authority of Ireland (SEAI) for sustainability / energy efficiency mentoring and advice	April 2013	Amy Jackson	Not started
	Prioritise recommendations from review by SEAI and agree actions, if any, with KMK Management	June 2013	Amy Jackson	Not Started
	Implement any actions arising from the above Management Meeting	July 2013	Max Kyck	Not Started
	Monitor effectiveness of improvements	Nov 2013	Amy Jackson	Not Started
4. Verify the Recycling Rates provided to KMK by all Outlets used by KMK and continue KMK's Outlet Auditing Schedule	Documentation review of information from all active outlets	June 2013	Amy Jackson	On-going
	Audit in person at least 1 in-state and 1 out-of-state facility during 2013	Dec 2013	Amy Jackson	Not started
5. Be "WEEELABEX ready" by December 2013 The WEEE Label of	Conduct Test Audit 1 March-April 2013 and implement all necessary actions arising as a result by 30th June 2013	June 2013	Amy Jackson / Kai Meyer	Audit: Complete Actions: In Progress

Aim	Objectives	Time Scale	Responsibility	Status
Excellence (WEEELABEX) Standard is a new Cenelec Standard for verified compliance to a level above and beyond the requirements of the WEEE Directive	Conduct Test Audit 2 July-August 2013 and implement all necessary actions arising as a result by 30th December 2013	Dec 2013	Amy Jackson / Kai Meyer	Not started
6. Maintain the Training Programme as necessary to ensure effective operations	Emergency Spill Response training (scenario based) for Van Drivers Emergency Spill Response training (scenario based) for General Operatives	May 2013	Kai Meyer (drivers) Max Kyck (operatives)	Not started
	Conduct training as scheduled: the only external training required during 2013 is Manual Handling (due August)	Aug 2013	Amy Jackson	Planned
	Train employees in Capacitors Sorting procedure to divert PCB-Free capacitors from Waste Disposal to Recycling	Feb 2013	Amy Jackson	In progress: 1 employee trained (for trial sort in Feb, with positive results)
	Flat Panel Displays processing: procedure to be written and employee(s) (as applicable) to be trained on how to operate the new process	May 2013	Amy Jackson	Not started
7. Review the Maintenance register	Review the Maintenance Register: - Ensure all items of plant / machinery critical to ensuring environmental control are subject to a schedule for planned (i.e. services) and preventive (i.e. oiling) maintenance - Check records on file for evidence of planned and preventive maintenance	May 2013	Max Kyck / Amy Jackson	Started
8. Maintain KMK's three Management Standards and associated Systems	ISO 14001:2004 Surveillance Audit ISO 9001:2008 Re-Certification Audit OHSAS 18001:2007 Surveillance Audit	July 2013	Amy Jackson	Continuous / Ongoing

Aim	Objectives	Time Scale	Responsibility	Status
9. Motivate and facilitate staff and the local community to recycle more	Arrange and promote at least one Recycling Day for staff of KMK, the Cappincur Industrial Estate, and the local Community. The KMK Facility will be an 'Open House' on this day and all attendees will be permitted access to learn about the activities carried out at KMK.	Aug 2013	Max Kyck, Kai Meyer, Amy Jackson	Not started

10.0 FINANCIAL PROVISIONS, MANAGEMENT & STAFFING STRUCTURE, PROGRAMME FOR PUBLIC INFORMATION

10.1 Financial Provisions and Environmental Liability Risk Assessment

KMK confirms that adequate financial provisions are in place for all proposed environmental improvements and controls for the forthcoming year and thereafter. In particular, KMK has 'Pollution Liability' of €6.5 million included in their company insurance document. This is more than adequate to cover any pollution incidence of environmental significance as requested in the Environmental Liability Directive.

In addition, a letter dated 8th November 2010 from the EPA acknowledges in principal, the adequate financial provision of €64,000. KMK have a bond provider (Ulster Bank) and an agreement is now established as dated 26-03-2012 whereby the agreed financial guarantee of €64,000 is now in place in the favour of the EPA (formerly in place with Offaly County Council).

ELRA annual statement;

Condition 12.3.1 of the waste licence states that: '*The licensee shall as part of the AER provide an annual statement as to the measures taken or adopted at the site in relation to the prevention of environmental damage, and the financial provisions in place in relation to the underwriting of costs for remedial actions following anticipated events (including closure) or accidents/incidents, as may be associated with the carrying out of the activity'*.

A full Environmental Liabilities Risk Assessment (ELRA) was prepared in May 2009 and submitted to the EPA soon after. This ELRA report is valid for 2012 as the site activities in principal have not changed and the site location remains the same.

Nevertheless, there are some changes in the ELRA report as previously submitted to the EPA in February 2010. These are as follows;

1) The installation and operation of the new WEEE-Plant building on-site for WEEE treatment finished on November 2011.

2) Battery recycling using a battery sorter machine.

3) On-going development of E area in terms of building construction and related services, completed during 2012.

In addition, during 2012 there were significant investments made in the installation of WEEE recovery plant within the WEEE building (referred to as a Smasher Plant). This equipment had an associated dust extraction abatement plant and final emissions point A2-8 (all licensed in 25th June 2012 via a technical amendment).

The waste licence review application ref: W0113-04 once granted in 2013 will condition a new ELRA to be conducted and this will be used to reappraise in detail the most up-to-date site conditions, activities and infrastructure.

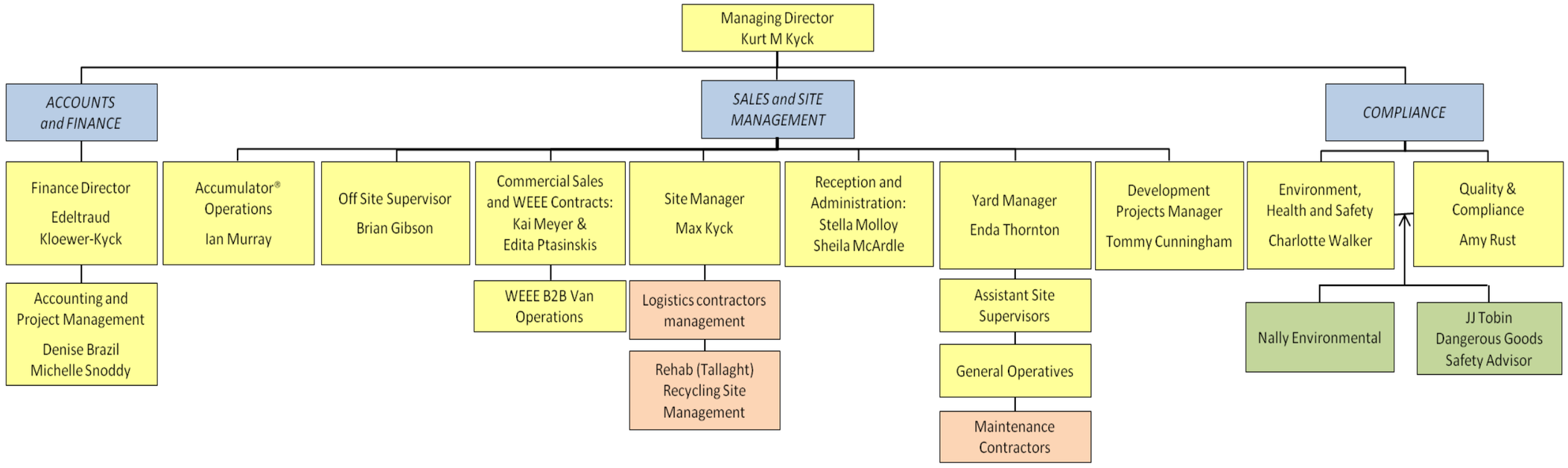
In relation to prevention of environmental damage, this is ensured by;

- Existing serviced site and facility infrastructure.
- Proposed improvements in development works as referred to in Section 8.0.
- KMK Metals has established an IMS (ISO 14001:2004 Environmental Management System, ISO 9001:2008 Quality Management System and OHSAS 18001:2007 Health and Safety Management Standard).
- On-going compliance with the conditions of the waste licence ref: W0113-03.

10.2 Management & Staffing Structure

Organisational Chart of the Environmental Management Structure at KMK Metals Recycling Ltd is presented below.

KMK Metals Recycling Ltd Staffing Structure



10.3 Programme for Public Information

A file cabinet is in place at the KMK Metals Recycling Ltd facility (EHS Office) and contains all data and information similar to that supplied to the Agency in compliance with the Waste Licence (e.g. monitoring data, ISO 14001 documents, environmental policy etc).

The company's three websites (detailed below) are also a valuable source of information readily available to the public regarding company operations and environmental progress.

- (www.kmk.ie)
- (www.weeerecycle.ie)
- (www.accumulator.ie)

The KMK website was re-created in 2012 and is now fully updatable by KMK staff, so that documents in the 'Audit Us' section are replaced with new versions instantly, and all other information can be re-worded / updated easily and quickly if desired.

In October 2012 KMK invited a group of 14 NTFSO Waste Enforcement Officer onsite for an educational Tour, and in 2013 KMK will provide a recycling and open day whereby member of the local community can visit KMK and learn about the activities onsite.

11.0 STAFF TRAINING

The following environmental training has been completed during the reporting period January 1st 2012 to December 31st 2012.

Table 11.1: Environmental Training for Staff

Course	Dates	Location	Trainer	Participants
360 Degree Excavator ("Bagger")	12/10/2012	On-site	Contractor	3
Basic Fire Extinguisher Instruction	15/06/2012	On-site	Contractor	7
Environmental Checks (Drainage Network)	09/03/2012	On-site	In-house	2
E-Voting Machines Dismantling	24/07/2012	On-site	In-house	8
Fire Warden Training	15/06/2012	On-site	Contractor	4
First Aid & Heartsaver AED	08/08/2012	On-site	Contractor	6

Course	Dates	Location	Trainer	Participants
First Aid Checklist	28/09/2012	On-site	In-house	1
FLT (Theory & Refresher)	09/11/2012	On-site	Contractor	4
FLT (Theory)	09/11/2012	On-site	Contractor	7
Fork Lift Truck (Assessment)	18/10/2012	On-site	Contractor	14
Fork Lift Truck (New Certs)	12/10/2012	On-site	Contractor	6
Induction	Throughout 2012	On-site	In-house	11
Initial Basic ADR Hazfreight Course	28/02/2012	On-site	Contractor	1
JCB Training	16/11/2012	On-site	Contractor	7
Manual Handling	09/10/2012	On-site	Contractor	14
SHA Sorting / WEEE Plant	Throughout 2012	On-site	In-house	5
SHASHER Maintenance Checks	30/08/2012	On-site	In-house	1
Supervisory Management (External)	13/04/2012	Off-site	Contractor	4
T40 Baler Checklist	28/03/2012	On-site	In-house	1
Budgeting and Forecasting	14/05/2012	Off-site	Contractor	1
e-Business Strategy	20/03/2012	Off-site	Contractor	1
H&S Management	25/04/2012	Off-site	Contractor	2
Management Skills	25/09/2012	Off-site	Contractor	1
Time Management	14/02/2012	Off-site	Contractor	1

KMK management wish to confirm that environmental training programmes are carried out for all staff as appropriate to their roles every year and training records are maintained accurately and are up-to-date onsite at all times.

12.0 OTHER ITEMS

There are no further items included in this Annual Environmental Report.

APPENDIX 1

Waste Received in 2012

Table 1: Total Civic Amenity waste received in 2012 at KMK Metals Recycling Ltd.

Point of Collection	Description Of Waste	EWC Code	Qty Tonnes
Civic Amenity	Lead batteries	16 06 01*	51.106
Civic Amenity	Ni-Cd batteries	16 06 02*	0.039
Civic Amenity	Alkaline batteries	16 06 04	58.598
Civic Amenity	Fluorescent tubes and other mercury-containing waste	20 01 21*	52.823
Civic Amenity	Discarded equipment containing chlorofluorocarbons	20 01 23*	785.486
Civic Amenity	Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components	20 01 35*	2,087.58
Civic Amenity	Discarded electrical and electric equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	20 01 36	4,472.91
TOTAL			**7,508.542**

Table 2: Total Commercial waste received in 2012 at KMK Metals Recycling Ltd.

Point of Collection	Description Of Waste	EWC Code	Qty Tonnes
Commercial	Wastes containing sulphides other than those mentioned in 06 06 02	06 05 03	0.685
Commercial	Filter cake materials	11 01 10	4.951
Commercial	Ferrous metal filings and turnings	12 01 01	174.313
Commercial	Special alloys materials / debris	12 01 02	0.982
Commercial	Non-ferrous metal filings and turnings	12 01 03	105.547
Commercial	Non-ferrous metal dust and particles	12 01 04	4.484
Commercial	Solder dross / materials	12 01 13	0.265
Commercial	Oxide powders	12 01 17	13.076
Commercial	Spent grinding bodies, dusts and powders	12 01 20*	1.471
Commercial	Non hazardous Spent grinding bodies	12 01 21	4.084
Commercial	Operational waste oil (from radiators)	13 02 08	0.026
Commercial	Cardboard packaging	15 01 01	0.152
Commercial	Plastic packaging	15 01 02	0.619
Commercial	Wood packaging	15 01 03	1.060
Commercial	Metallic packaging	15 01 04	0.632
Commercial	Mixed packaging	15 01 06	7.336
Commercial	Components not otherwise specified (De-polluted ELV engines from cars)	16 01 22	15.558
Commercial	Capacitors	16 02 09*	0.338
Commercial	Discarded equipment containing chlorofluorocarbons, HCFC, HFC	16 02 11*	107.46
Commercial	Discarded equipment containing hazardous components (flat screen monitors & TVs, laptops, CRTs [TVs & monitors])	16 02 13*	166.184
Commercial	Discarded equipment other than those mentioned in 16 02 10 to 16 02 13 (IT equipment – phones, printers, copiers etc)	16 02 14	621.46
Commercial	Hazardous components removed from discarded equipment	16 02 15*	2.547
Commercial	Components removed from discarded equipment other than those mentioned in 16 02 15	16 02 16	531.536
Commercial	Inorganic wastes other than those mentioned in 16 03 03 – plastic with stainless steel	16 03 04	12.032
Commercial	Lead batteries	16 06 01*	349.784
Commercial	Ni-Cd batteries	16 06 02*	4.606
Commercial	Alkaline batteries	16 06 04	102.091
Commercial	Other batteries and accumulators	16 06 05	1.102
Commercial	Spent catalysts containing precious metals	16 08 01	0.606

Table 2: Total Commercial waste received in 2012 at KMK Metals Recycling Ltd.

Point of Collection	Description Of Waste	EWC Code	Qty Tonnes
Commercial	Ferrous Metal	19 12 02	25.543
Commercial	Non Ferrous Metal	19 12 03	14.622
Commercial	Plastic scrap	19 12 04	7.743
Commercial	Fluorescent tubes and bulbs	20 01 21*	36.897
Commercial	Discarded equipment containing chlorofluorocarbons	20 01 23*	755.701
Commercial	Batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries	20 01 33*	13.367
Commercial	Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components	20 01 35*	1,267.276
Commercial	Discarded electrical and electric equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	20 01 36	3,074.368
Commercial	Steel scrap	20 01 40	0.583
TOTAL			**7,431.087**

Table 3: Total Industrial waste received in 2012 at KMK Metals Recycling Ltd.

Point of Collection	Description Of Waste	EWC Code	Qty Tonnes
Industrial	Metal alloys and stainless steel materials	06 04 99	80.183
Industrial	Sludges from on-site effluent treatment containing dangerous solutions	06 05 02*	9.056
Industrial	Wastes not otherwise specified	06 13 99	2.765
Industrial	Sludges and filter cakes containing dangerous substances	11 01 09*	2.322
Industrial	Ferrous metal filings and materials	12 01 01	25.801
Industrial	Non-ferrous metal filings and turnings	12 01 03	163.511
Industrial	Non-ferrous metal dust and particles	12 01 04	111.401
Industrial	Welding wastes (solder dross)	12 01 13	3.202
Industrial	Oxide powders	12 01 17	33.901
Industrial	Spent grinding bodies and grinding materials containing dangerous substances	12 01 20*	2.732
Industrial	Spent grinding bodies and grinding materials other than those mentioned in 12 01 20	12 01 21	3.499
Industrial	Mixed packaging	15 01 06	0.409
Industrial	Discarded equipment containing chlorofluorocarbons, HCFC, HFC	16 02 11*	2.488
Industrial	Discarded equipment containing hazardous components other than those mentioned in 16 02 10 to 16 02 12	16 02 13*	33.898
Industrial	Discarded equipment other than those mentioned in 16 02 10 to 16 02 13 (IT equipment – PCs, servers, printers, copiers, keyboards, CPUs, etc)	16 02 14	49.713
Industrial	Components removed from discarded equipment other than those mentioned in 16 02 15	16 02 16	113.982
Industrial	Lead batteries	16 06 01*	5.794
Industrial	Alkaline batteries (except 16 06 03)	16 06 04	1.112
Industrial	Other batteries	16 06 05	0.592
Industrial	Non Ferrous metal	19 12 03	8.156
Industrial	Plastic & rubber from shredded electrical scrap	19 12 04	4.19
Industrial	Fluorescent tubes and other mercury-containing waste	20 01 21*	3.561
Industrial	Batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries	20 01 33*	0.409
Industrial	Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components	20 01 35*	0.706
Industrial	Discarded electrical and electric equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	20 01 36	3.174
Industrial	Steel scrap	20 01 40	24.867
TOTAL			**691.424**

Table 4: Total Transfer Station waste received in 2012 at KMK Metals Recycling Ltd.

Point of Collection	Description Of Waste	EWC Code	Qty Tonnes
Transfer Station	Ferrous metal filings and turnings	12 01 01	165.588
Transfer Station	Non-ferrous metal filings, turnings & wire	12 01 03	9.977
Transfer Station	Welding waste – solder dross	12 01 13	10.557
Transfer Station	Cardboard packaging	15 01 01	0.037
Transfer Station	Mixed packaging	15 01 06	3.533
Transfer Station	Capacitors containing PCB's	16 02 09*	2.745
Transfer Station	Discarded electrical equipment containing chlorofluorocarbons, HCFC, HFC	16 02 11*	9.302
Transfer Station	Discarded equipment containing hazardous components other than those mentioned in 16 02 10 to 16 02 12	16 02 13*	176.918
Transfer Station	Discarded equipment other than those mentioned in 16 02 10 to 16 02 13 (IT equipment – PCs, servers, printers, copiers, keyboards, CPUs, etc)	16 02 14	1,908.813
Transfer Station	Components removed from discarded equipment other than those mentioned in 16 02 15	16 02 16	230.238
Transfer Station	Lead batteries	16 06 01*	102.198
Transfer Station	Ni-Cd batteries	16 06 02*	17.855
Transfer Station	Alkaline Batteries (except 16 06 03)	16 06 04	12.175
Transfer Station	Other batteries and accumulators	16 06 05	2.392
Transfer Station	Non Ferrous metal	19 12 03	9.038
Transfer Station	Plastic and Rubber	19 12 04	59.99
Transfer Station	Fluorescent tubes and other mercury- containing waste	20 01 21*	34.615
Transfer Station	Discarded equipment containing chlorofluorocarbons	20 01 23*	397.573
Transfer Station	Unsorted batteries	20 01 33*	1.707
Transfer Station	Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components	20 01 35*	417.134
Transfer Station	Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	20 01 36	1,325.113
TOTAL			**4,897.498**

APPENDIX 2

Waste Despatched in 2012

Table 1: Waste despatched in 2012 at KMK Metals Recycling Ltd.

Description Of Waste	EWC Code	Qty Tonnes	Tonnes Destination Export	Tonnes Destination Ireland
Sludges from on-site effluent treatment containing dangerous solutions	06 05 02*	9.056	9.056	
Welding wastes – solder dross	12 01 13	13.284	13.284	
Spent Grinding Bodies and Grinding Materials containing Dangerous Substances	12 01 20*	97.550	97.550	
Waste Oil from processing	13 02 08*	19.548		19.548
Wooden packaging	15 01 03	29.540		29.540
Mixed packaging	15 01 06	266.960		266.960
Engines from De-polluted End of Life Vehicles	16 01 22	0.634	0.634	
Discarded equipment containing chlorofluorocarbons, HCFC, HFC	16 02 11*	2,003.780	2,003.780	
Discarded equipment containing hazardous components (16) other than those mentioned in 16 02 09 to 16 02 12	16 02 13*	2,003.810	1,499	504.810
Discarded equipment other than those mentioned in 16 02 09 to 16 02 13	16 02 14	6,952.582	6,952.582	
Glass (Process generated)	16 02 15*	1,948.994	1,862.800	86.194
Components removed from discarded equipment other than those mentioned in 16 02 15	16 02 16	1,918.032	1,913.727	4.305
Lead batteries	16 06 01*	538.550	538.550	
Alkaline batteries (except 16 06 03)	16 06 04	564.367	177.879	386.488
Steel (Process generated)	19 12 02	360.165	360.165	
Non-Ferrous metal (Process generated)	19 12 03	816.077	816.077	
Plastic and rubber fractions from WEEE treatment processes	19 12 04	1,170.745	72.272	1,098.473
Minerals (Process generated)	19 12 09	43.222		43.222
Other Wastes other than those mentioned in 19 12 11 (Process generated)	19 12 12	492.273		492.273
Fluorescent tubes and other mercury-containing waste	20 01 21*	102.522	20.058	82.464
TOTAL		**19,351.69**		

APPENDIX 3

Waste in Stock in 2012

Table 1: Waste in stock at end of 2012 at KMK Metal Recycling Ltd.

Description Of Waste	EWC Code	Qty Tonnes
Graphite materials	06 13 99	0.245
Sludges and filter cakes other than those mentioned in 11 01 09	11 01 09*	11.412
Special alloys materials / debris	12 01 02	0.318
Non-ferrous metal filings and turnings	12 01 03	38.88
Welding wastes – solder dross	12 01 13	0.058
Spent grinding bodies and grinding materials containing dangerous substances	12 01 20*	49.993
Spent grinding bodies and grinding materials other than those mentioned in 12 01 20 (scoring pastes)	12 01 21	14.13
Absorbents, wiping clothe, materials contaminated	15 02 02*	1.21
Absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02	15 02 03	0.828
Capacitors containing PCB's, fractions	16 02 09*	1.181
Smoke detectors	16 02 13*	0.179
Discarded equipment other than those mentioned in 16 02 10 to 16 02 13 (IT equipment – PCs, servers, printers, copiers, keyboards, CPUs, etc)	16 02 14	51.0
Glass fractions from WEEE	16 02 15*	0.006
Components removed from discarded equipment other than those mentioned in 16 02 15	16 02 16	63.212
Discarded inorganic chemicals consisting of or containing dangerous substances (Fraction phosphorus powder from CRT dismantling)	16 05 07*	1.493
Lead batteries	16 06 01*	15.408
Alkaline batteries (except 16 06 03)	16 06 04	27.242
Other batteries and accumulators	16 06 05	7.827
Spent catalysts containing precious metals	16 08 01	0.432
Ferrous metal from processing on-site	19 12 02	25.435
Non-ferrous metal from processing	19 12 03	35.969
Plastics and rubber materials from processing	19 12 04	26.0
Fluorescent tubes and other mercury-containing waste	20 01 21*	1.40
Discarded equipment containing chlorofluorocarbons	20 01 23*	9.0
Unsorted batteries	20 01 33	14.08
Batteries and accumulators other than those mentioned in 20 01 33	20 01 34	146.72
Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components	20 01 35*	144.72
Steel materials	20 01 40	14.465
TOTAL		**702.843**

APPENDIX 4

Dust Monitoring Report 2012

Ambient Dust Report

for

KMK METALS RECYCLING LTD.

WASTE LICENCE REF: W0113-03

CAPPINCUR INDUSTRIAL ESTATE, DAINGEAN ROAD, TULLAMORE, CO. OFFALY

September 2012

Printed on
Recycled Paper

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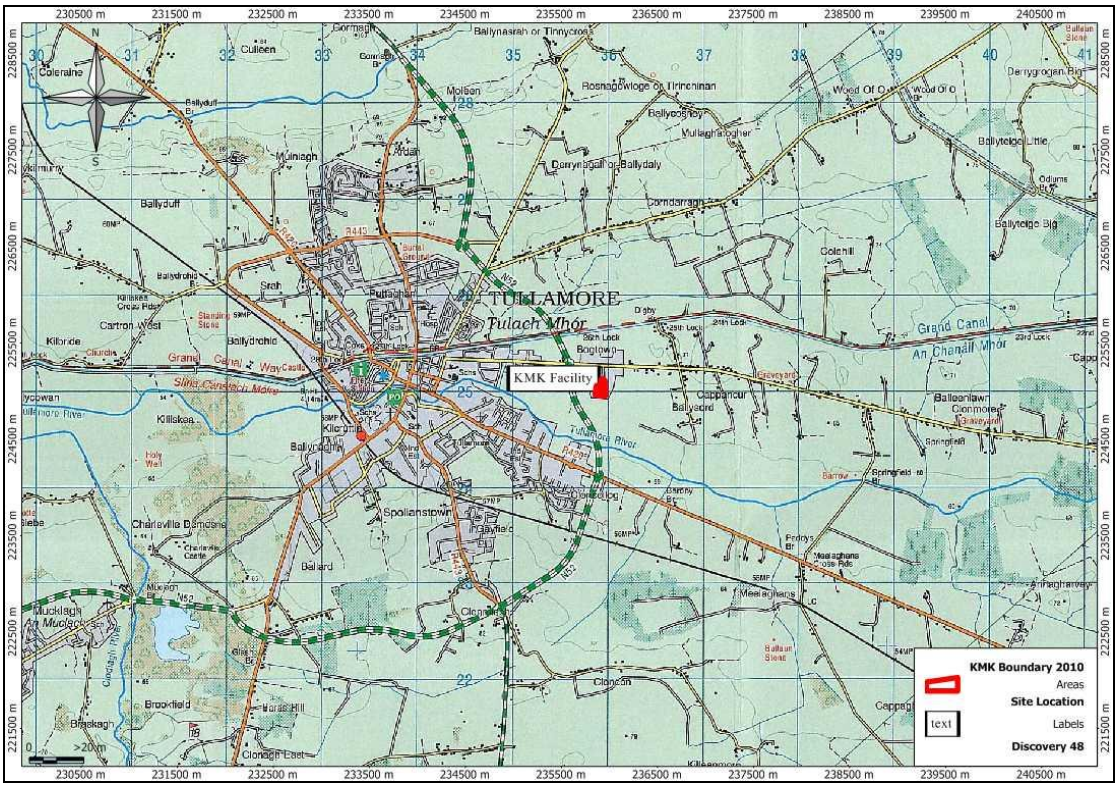
1.0 INTRODUCTION

ENVIROCO Management were commissioned by Ms Charlotte Walker of KMK Metals Recycling Ltd, Cappincur Industrial Estate, Tullamore, Co Offaly to conduct the annual dust monitoring event at the facility.

The KMK Metals facility is located in the Cappincur Industrial Estate towards the east of Tullamore town, off the L-02025 road to Daingean – Figure 1.0.1.



Annual dust deposition monitoring was carried out by ENVIROCO Management Ltd in compliance with Waste Licence W0113-03. Monitoring occurred from the 1st August to the 30th August 2012 during normal activity at the facility. A total of 6 locations were set up for the annual monitoring, which form part of the compliance requirements of KMK's waste licence and one additional location.

2.0 METHODOLOGY

The dust monitoring method used for the monitoring event is based on a modified version of the Bergerhoff Method VID 2119 'Measurement of Dustfall Using the Bergerhoff Instrument (Standard Method)'. The dust monitoring map (Figure 2.1 below) identifies the locations for the 6 monitoring stations.

The dust monitors were left in-situ for 30 days from the 1st August to the 30th August 2012. Figure 2.1 shows the location of each of the stations. These are described in Table 2.1 below.

Table 2.1 Location of Dust Monitoring Stations at Cappincur Facility, Co. Offaly

Station I.D.	Location Description	Irish Grid Reference	
		Easting	Northing
A2-1	Car Park at Fence Boundary	635955	725044
A2-2	Eastern boundary, beside disused portacabin	635959	725004
A2-3	Fence at southwest boundary	635882	724955
A2-4	Site Entrance	635911	724993
A2-5	Western Boundary	635866	725002
A2-6	Northern Boundary	635902	725021

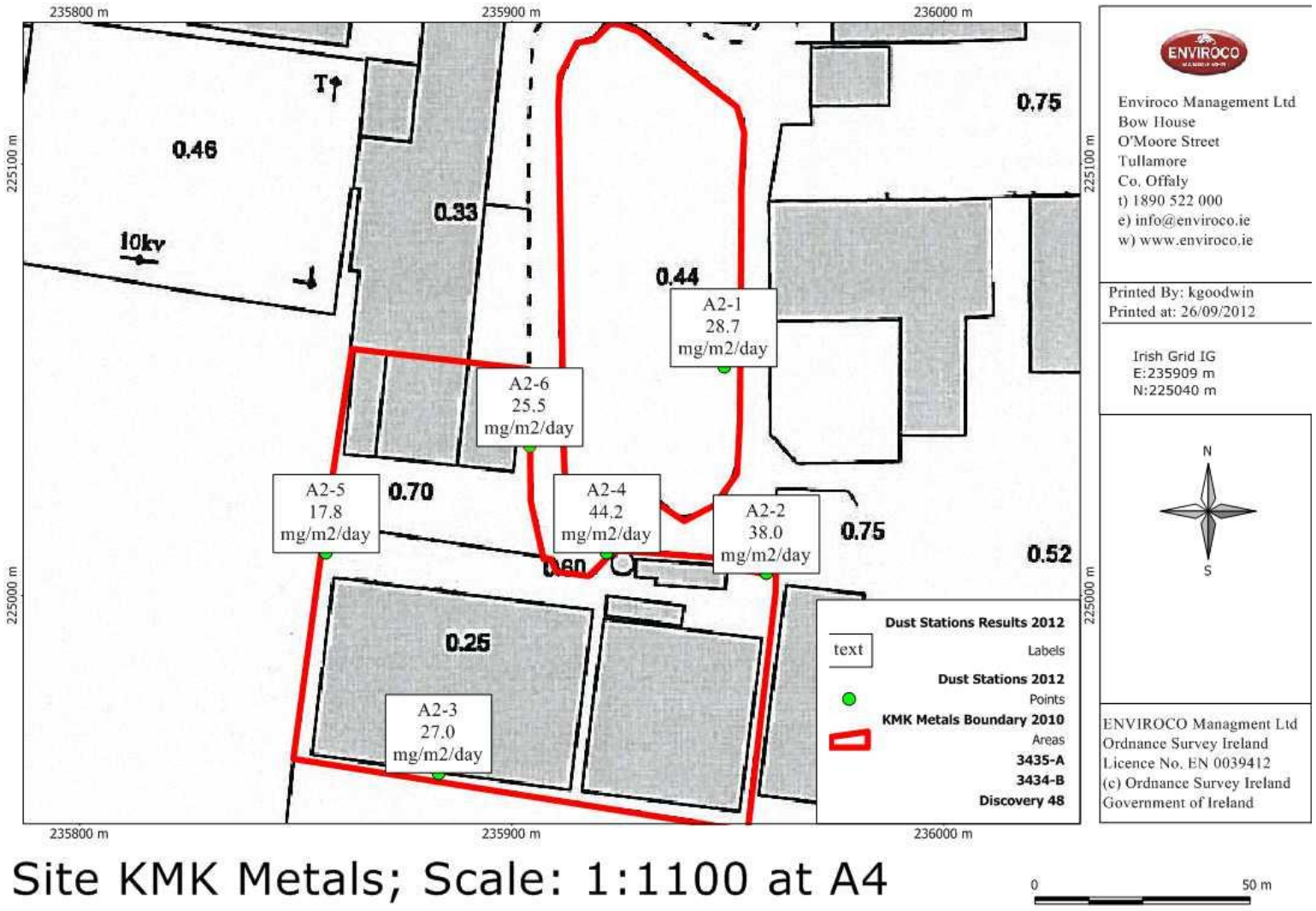


Figure 2.1: Dust Monitoring Locations at the KMK Facility, Cappincur

2.1 Problems Encountered

No problems were encountered during the monitoring period. All stations were accessible during both set up and collection. It was noted that extensive building works were ongoing during the monitoring period, and as such it was expected that higher levels than previous could be recorded. Monitoring during August was completed to comply with licence conditions. Each container was sealed and sent to the laboratory.

3.0 RESULTS

After 30 days of monitoring, each of the dust stations was disassembled and the samples were sent to an Accredited Laboratory for analysis (BHP Laboratory). The Certificates of Analysis are presented in Appendix A.

The results from the monitoring are shown in table 3.1 and 3.2. These levels are compared to the EPA guidance limit for nuisance dust.

Table 3.1: Results of Bergerhoff Total Dust Monitoring at the Facility

Station I.D.	**Monitoring Location**	**Irish Grid Ref. (ITM)**		**Dust Deposition** (Aug 2012) **mg/m^2/day**	**EPA licence Limits mg/m^2/day**
		Easting	**Northing**		
A2-1	Car Park at Fence Boundary	0635888	0725079	28.7	350
A2-2	Eastern boundary, beside port-a-cabin	0635900	0725035	38.0	350
A2-3	Fence at southern boundary	0635825	0724990	27.0	350
A2-4	Site Entrance	0635867	0725029	44.2	350
A2-5	Western Boundary	0635798	0725037	17.8	350
A2-6	Northern Boundary	0635853	0725059	25.5	350

Table 3.2: Results of Metallic Species In Dust at the Facility

Parameters	Metallic analysis in dust (mg/sample)					
	A2-1	**A2-2**	**A2-3**	**A2-4**	**A2-5**	**A2-6**
Aluminium (Al)	1.642	0.842	1.028	0.500	1.534	0.650
Copper (Cu)	<0.001	0.158	0.037	<0.001	<0.001	<0.001
Arsenic (As)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium (Cd)	0.006	<0.001	<0.001	0.272	<0.001	<0.001
Chromium (Cr)	0.057	<0.001	<0.001	0.295	<0.001	0.017
Iron (Fe)	<0.001	0.263	0.222	<0.001	<0.001	<0.001
Mercury (Hg)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel (Ni)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead (Pb)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc (Zn)	1.586	0.053	1.443	0.295	<0.001	<0.001

Weather conditions can have a noticeable impact upon dust creation and dust entrainment in the air. Drier weather will increase the ambient dust on the ground and will lighten small particulates. Wind strength will determine the size of particles that can be entrained in the air and the distance they will be transported. The Met Eireann data from the Gurteen Synoptic Station for the August monitoring events show that August had higher levels of rainfall than normal, with lower temperatures than recorded at the Met Synoptic station over the last couple of years. Tables 3.3 and 3.4 below give the annual averages for both rainfall and temperature from the closest Met Eireann Synoptic Station – Gurteen College.

Table 3.3 Rainfall Data from the Gurteen Synoptic Station

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2012	94.2	32.2	28.7	80.4	49.6	191.8	132.2	**103.0**	49.3	-	-	-	
2011	54.5	105.9	29.8	37.8	85.4	101.0	76.1	**41.0**	91.0	97.0	106.3	103.7	929.5
Mean	96.4	66.2	74.5	59.8	68.0	71.8	66.7	84.9	74.8	103.8	89.8	91.5	948.2

Table 3.3 Temperature Data from the Gurteen Synoptic Station

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2012	6.6	7.0	8.1	6.5	10.6	13.0	14.1	**15.6**	12.1	-	-	-	10.4
2011	3.0	6.8	6.0	10.7	10.7	11.6	14.1	**13.0**	13.4	11.3	9.6	5.8	9.7
Mean	5.4	5.2	6.9	8.2	11.1	13.8	15.6	15.3	13.2	10.2	7.4	5.8	9.8

Note: data for the most recent months are provisional. All means are for the period 1981-2010.

The Annual temperatures for 2012 are the means of 269 daily values
The Annual totals for 2012 are the totals of 269 daily values.
The Annual temperatures for 2011 are the means of 365 daily values.
The Annual totals for 2011 are the totals of 365 daily values.

Table 3.5 below provides an overview of the rainfall levels documented at the Gurteen Synoptic Station for the 30 day monitoring events.

Table 3.4 Rainfall Levels from Gurteen College Synoptic Station

Date	Rainfall (mm)	Date	Rainfall (mm)
01/08/2012	2.7	16/08/2012	7
02/08/2012	0.6	17/08/2012	10.2
03/08/2012	11.8	18/08/2012	0.3
04/08/2012	6.7	19/08/2012	0
05/08/2012	3.7	20/08/2012	0
06/08/2012	3.2	21/08/2012	2.9
07/08/2012	0.1	22/08/2012	0.6
08/08/2012	0	23/08/2012	5.3
09/08/2012	0	24/08/2012	2.4
10/08/2012	0	25/08/2012	0.7
11/08/2012	0	26/08/2012	2.3
12/08/2012	9.7	27/08/2012	3.5
13/08/2012	7.4	28/08/2012	4.3
14/08/2012	0	29/08/2012	3.1
15/08/2012	14.4	30/08/2012	0

*No readings were presented for these dates on the Met Eireann database as of yet.

Table 3.5 Wind (knotts) Levels from the Gurteen Synoptic Station for Month of August

Date	Mean Wind Speed (knots)	Date	Mean Wind Speed (knots)
01/08/2012	12	16/08/2012	11.3
02/08/2012	10.3	17/08/2012	5.9
03/08/2012	9.3	18/08/2012	8.4
04/08/2012	7.2	19/08/2012	9
05/08/2012	4.8	20/08/2012	7.8
06/08/2012	6.8	21/08/2012	9.8
07/08/2012	4.2	22/08/2012	10
08/08/2012	2.7	23/08/2012	7.5
09/08/2012	2.5	24/08/2012	8.3
10/08/2012	6.5	25/08/2012	8
11/08/2012	9.3	26/08/2012	8.4
12/08/2012	8.4	27/08/2012	10.7

13/08/2012	8.8	28/08/2012	11
14/08/2012	8.4	29/08/2012	10.7
15/08/2012	15.7	30/08/2012	8.3

Table 3.6 Beaufort Scale of Wind Force

Wind Force	Short Description	Specifications for use on Land	Wind Speed at 10 metres above Level Ground		
			Knots	Metres per second	KM per hour
0	Calm	Smoke rises vertically	<1	<0.3	<1
1	Light Air	Direction of wind shown by smoke but not by wind vanes	1-3	0.3-1.5	1-5
2	Light breeze	Wind felt on face, leaves rustle, ordinary vanes moved by wind	4-6	1.6-3.3	6-11
3	Gentle breeze	Leaves and small twigs in constant motion, wind extends light flag	7-10	3.4-5.4	12-19
4	Moderate breeze	Raises dust and loose paper, small branches are moved	11-16	5.5-7.9	20-28
5	Fresh breeze	Small trees in leaf begin to sway, crested wavelets form on inland waters	17-21	8.0-10.7	29-38
6	Strong breeze	Large branches in motion, whistling heard in telegraph wires; umbellas used with difficulty	22-27	10.8-13.8	39-49
7	Near gale	Whole trees in motion, inconvenience walking against the wind	28-33	13.9-17.1	50-61
8	Gale	Breaks twigs off trees, generally impedes progress	34-40	17.2-20.7	62-74
9	Strong gale	Slight structural damage occurs (chimney pots and slates removed)	41-47	20.8-24.4	75-88
10	Storm	Seldom experienced inland, trees uprooted, considerable structural damage occurs	48-55	24.5-28.4	89-102
11	Violent storm	Very rarely experienced, accompanied by widespread damage	56-63	28.5-32.6	103-117
12	Hurricane	-	64 and over	32.7 and over	117 and over

Table 3.6 provides an overview of the wind levels throughout the 30 day period the dust containers were in position. Based on the Beaufort Scale of Wind Force (see Table 3.7 above) it is clear that during the August event for 16 of the 30 days wind in the area was less than between 7 to 10knotts, which could be classified as a wind force of 3 (Gentle Breeze) – leaves and twigs in constant movement. There were 4 recorded incidents of between 11 to 16knotts which is classed as a moderate breeze.
In general, the wind strength was indeed stronger for this August period than the previous August period last year.

ENVIROCO Management Ltd have established a meteorological station in the Tullamore area. This unit is a Davis Vantage Vue system and was operational during the period of August 2012. Data from this unit was correlated to assess local weather patterns during August. Figure 3-1 shows a generated wind rose for August. This highlights that the predominate wind was South-Easterly.

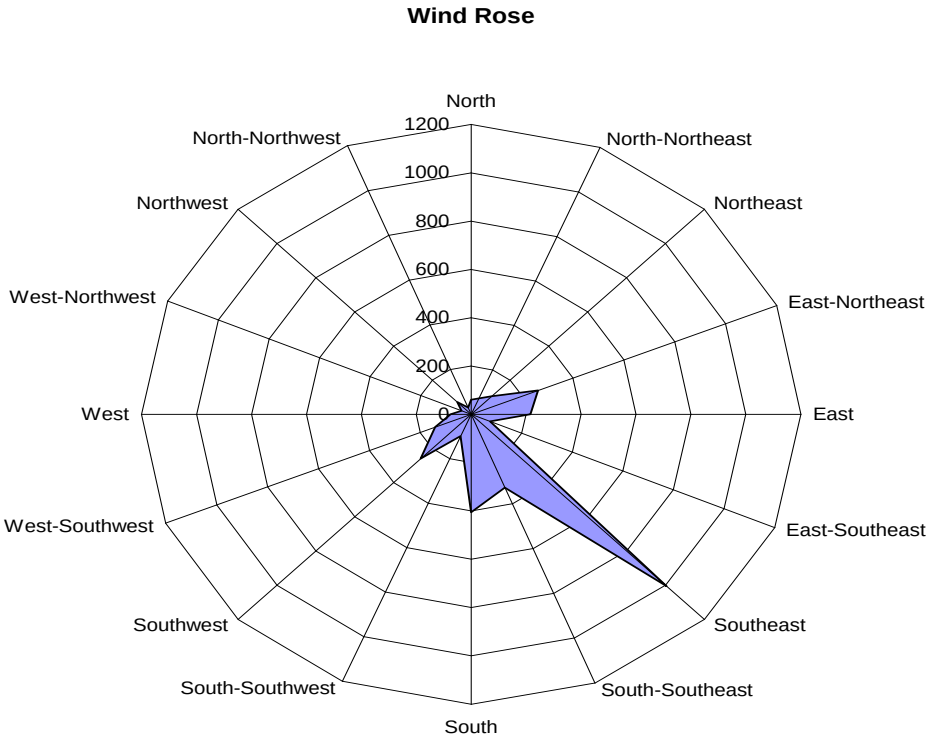


Figure 0.1 Wind Rose for Tullamore, August 2012

Table 3.7 Meteorological Data from the Vantage Vue Weather Station, Tullamore

Parameter	Month August
Average Temperature*	15.95
Highest Temperature*	25.90
Lowest Temperature*	8.30
Average Wind Speed*	1.2
Highest Wind Speed*	16.10
Rainfall Total*	85.41
Average Pressure	665.15

Temperature in ºC; Wind Speed in m/s; Rainfall in mm

4.0 DISCUSSION

Dust monitoring was conducted during the month of August 2012. The event occurred during the end of the summer period, as required in the waste licence, the period of monitoring was a typical operational month at KMK with above average wind and rainfall. There were generally wet climatic periods.

Dust monitoring around the boundaries of the KMK site shows that all dust deposition results were below the EPA recommendation limit of 350mg/m^2/day.

It is important to acknowledge the full compliance with the EPA dust limits from KMK and the reasons for this compliance are identified as follows;

- During this August monitoring period, all site construction activities were complete and especially all concrete yard surfaces were fully finished and in use. Hence, there was no dust impact from vehicles driving on hardcore ground which typically results in dust and general dirt and clay generation.

- It is acknowledged that during periods of dry weather, KMK yard operatives routinely dampen down all internal roads and yard areas in order to prevent dust generation. This was further achieved using a dedicated mobile road sweeper at KMK which is now part of company plant on-site.

An analysis of the metallic species in all seven dust samples was also carried out over the same 30 day period using the same sampling methods as those for the total dust deposition. The sample parameters for arsenic, nickel, mercury and lead measured were all below the actual laboratory limits of detection of 0.001mg (see Table 3.2).

Zinc was detected in minute quantities at 4 stations – A2-1, A2-2, A2-3 and A2-4, cadmium was detected in minute quantities for the two stations, A2-1 and A2-4 and chromium was also detected at minute quantities for stations A2-1, A2-4 and A2-6.

Aluminium was detected at the highest concentrations out of all the metallic species but at low levels with the highest being 1.64mg at station A2-1.

In terms of comparison of metals in ambient air samples to relevant standards where relevant, this can be only be achieved by conducting a PM10 sampling event for industrial operations (i.e. measurement of breathable dusts in the air) which metallic speciation of the samples. This sampling event is strongly health and safety orientated with emphasis on sampling methods, times, set back distances from roads and specialised equipment to be used. The regulation S.I No 58 of 2009 (Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009) covers this process. However, for the purpose of this report which is compliant with the waste licence W0113-03, PM10 sampling is not sought or required.

5.0 CONCLUSIONS

Monitoring of ambient dust deposition occurred at six stations around the site during August 2012. All total dust deposition results were in compliance with the waste license.

There were some detectable levels of metallic species within the same dust samples but these levels are not considered significant.

APPENDIX A

Certificate of Analysis

August 2012

BHP/CL/02D

TEST REPORT

Analysing
Testing
Consulting
Calibrating

Client: Enviroco Management Ltd
Bow House
O'Moore St
Tullamore
Co.Offaly

FTAO: Kenneth Goodwin

BHP Ref. No.: 105809.1
Order No:
Date Received: 06/09/12
Date Completed: 14/09/12
Test Specification: Nil
Item :See below

Site Reference: KM10

BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpcem2@bhp.ie

TEST	Client Reference	Units	Results	Method
Dust Deposition	A2-1	$mg/m^2/day$	28.7	VDI 2119 Part2
Dust content		mg	164.9	VDI 2119 Part2
Metal content of dust				
Aluminium (Al)		ug	1642	Digestion/ICP
Arsenic (As)		ug	<1	Digestion/ICP
Cadmium (Cd)		ug	6	Digestion/ICP
Chromium (Cr)		ug	57	Digestion/ICP
Copper (Cu)		ug	<1	Digestion/ICP
Iron (Fe)		ug	<1	Digestion/ICP
Mercury (Hg)		ug	<1	Digestion/ICP
Nickel (Ni)		ug	<1	Digestion/ICP
Lead (Pb)		ug	<1	Digestion/ICP
Zinc (Zn)		ug	1586	Digestion/ICP

Additional Information: The sample was in place from 01/08/12 to 30/09/12.
The total dust sample was digested and the metal results are expressed in terms of ug metal in the dust recovered.

Authorised by:

P. O'S

Pat O'Sullivan
Chemical and Environmental Monitoring Laboratory

Date of Issue: 14th September 2012

BHP/CL/02D

TEST REPORT

Analysing
Testing
Consulting
Calibrating

Client: Enviroco Management Ltd
Bow House
O'Moore St
Tullamore
Co.Offaly

FTAO: Kenneth Goodwin

BHP Ref. No.: 105809.2
Order No:
Date Received: 06/09/12
Date Completed: 14/09/12
Test Specification: Nil
Item :See below

Site Reference: KM10

BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpcem2@bhp.ie

TEST	Client Reference	Units	Results	Method
Dust Deposition	A2-2	$mg/m^2/day$	38.0	VDI 2119 Part2
Dust content		mg	218.3	VDI 2119 Part2
Metal content of dust				
Aluminium (Al)		ug	842	Digestion/ICP
Arsenic (As)		ug	<1	Digestion/ICP
Cadmium (Cd)		ug	<1	Digestion/ICP
Chromium (Cr)		ug	<1	Digestion/ICP
Copper (Cu)		ug	158	Digestion/ICP
Iron (Fe)		ug	263	Digestion/ICP
Mercury (Hg)		ug	<1	Digestion/ICP
Nickel (Ni)		ug	<1	Digestion/ICP
Lead (Pb)		ug	<1	Digestion/ICP
Zinc (Zn)		ug	53	Digestion/ICP

Additional Information: The sample was in place from 01/08/12 to 30/09/12.
The total dust sample was digested and the metal results are expressed in terms of ug metal in the dust recovered.

Authorised by:

P. O'S.

Pat O'Sullivan
Chemical and Environmental Monitoring Laboratory

Date of Issue: 14th September 2012

BHP/CL/02D

TEST REPORT

Analysing
Testing
Consulting
Calibrating

BHP

BHP
New Road
Thomondgate
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Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpcem2@bhp.ie

Client: Enviroco Management Ltd
Bow House
O'Moore St
Tullamore
Co.Offaly

FTAO: Kenneth Goodwin

BHP Ref. No.: 105809.3
Order No:
Date Received: 06/09/12
Date Completed: 14/09/12
Test Specification: Nil
Item :See below

Site Reference: KM10

TEST	Client Reference	Units	Results	Method
Dust Deposition	A2-3	$mg/m^2/day$	27.0	VDI 2119 Part2
Dust content		mg	155.2	VDI 2119 Part2
Metal content of dust				
Aluminium (Al)		ug	1028	Digestion/ICP
Arsenic (As)		ug	<1	Digestion/ICP
Cadmium (Cd)		ug	<1	Digestion/ICP
Chromium (Cr)		ug	<1	Digestion/ICP
Copper (Cu)		ug	37	Digestion/ICP
Iron (Fe)		ug	222	Digestion/ICP
Mercury (Hg)		ug	<1	Digestion/ICP
Nickel (Ni)		ug	<1	Digestion/ICP
Lead (Pb)		ug	<1	Digestion/ICP
Zinc (Zn)		ug	1443	Digestion/ICP

Additional Information: The sample was in place from 01/08/12 to 30/09/12.
The total dust sample was digested and the metal results are expressed in terms of ug metal in the dust recovered.

Authorised by:

P. o'S.

Pat O'Sullivan
Chemical and Environmental Monitoring Laboratory

Date of Issue: 14th September 2012

BHP/CL/02D

TEST REPORT

Analysing
Testing
Consulting
Calibrating

Client: Enviroco Management Ltd
Bow House
O'Moore St
Tullamore
Co.Offaly

FTAO: Kenneth Goodwin

BHP Ref. No.: 105809.4
Order No:
Date Received: 06/09/12
Date Completed: 14/09/12
Test Specification: Nil
Item :See below

Site Reference: KM10

BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpcem2@bhp.ie

TEST	Client Reference	Units	Results	Method
Dust Deposition	A2-4	$mg/m^2/day$	44.2	VDI 2119 Part2
Dust content		mg	254	VDI 2119 Part2
Metal content of dust				
Aluminium (Al)		ug	500	Digestion/ICP
Arsenic (As)		ug	<1	Digestion/ICP
Cadmium (Cd)		ug	272	Digestion/ICP
Chromium (Cr)		ug	295	Digestion/ICP
Copper (Cu)		ug	<1	Digestion/ICP
Iron (Fe)		ug	<1	Digestion/ICP
Mercury (Hg)		ug	<1	Digestion/ICP
Nickel (Ni)		ug	<1	Digestion/ICP
Lead (Pb)		ug	<1	Digestion/ICP
Zinc (Zn)		ug	295	Digestion/ICP

Additional Information: The sample was in place from 01/08/12 to 30/09/12.
The total dust sample was digested and the metal results are expressed in terms of ug metal in the dust recovered.

Authorised by:

P. O Sullivan

Pat O'Sullivan
Chemical and Environmental Monitoring Laboratory

Date of Issue: 14th September 2012

BHP/CL/02D

TEST REPORT

Analysing
Testing
Consulting
Calibrating

Client: Enviroco Management Ltd
Bow House
O'Moore St
Tullamore
Co.Offaly

FTAO: Kenneth Goodwin

BHP Ref. No.: 105809.5
Order No:
Date Received: 06/09/12
Date Completed: 14/09/12
Test Specification: Nil
Item :See below

Site Reference: KM10

BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpcem2@bhp.ie

TEST	Client Reference	Units	Results	Method
Dust Deposition	A2-5	mg/m^2/day	17.8	VDI 2119 Part2
Dust content		mg	102.3	VDI 2119 Part2
Metal content of dust				
Aluminium (Al)		ug	1534	Digestion/ICP
Arsenic (As)		ug	<1	Digestion/ICP
Cadmium (Cd)		ug	<1	Digestion/ICP
Chromium (Cr)		ug	<1	Digestion/ICP
Copper (Cu)		ug	<1	Digestion/ICP
Iron (Fe)		ug	<1	Digestion/ICP
Mercury (Hg)		ug	<1	Digestion/ICP
Nickel (Ni)		ug	<1	Digestion/ICP
Lead (Pb)		ug	<1	Digestion/ICP
Zinc (Zn)		ug	<1	Digestion/ICP

Additional Information: The sample was in place from 01/08/12 to 30/09/12.
The total dust sample was digested and the metal results are expressed in terms of ug metal in the dust recovered.

Authorised by:

P. O'S

Pat O'Sullivan
Chemical and Environmental Monitoring Laboratory

Date of Issue: 14th September 2012

APPENDIX 5

Air Emissions Stack Monitoring Reports for 2012

GLENSIDE
ENVIRONMENTAL SERVICES
Environmental and Engineering Consultants

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:	24th 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 15th 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

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:	

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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
Dust Filtration Plant – Exhaust Stack	Particulates Run 1
	Particulates Run 2
	Particulates Run 3
	Metals (Total of Cd+Tl)
	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.

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	0.31	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

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

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

6. Annex 1

6.1. Personnel

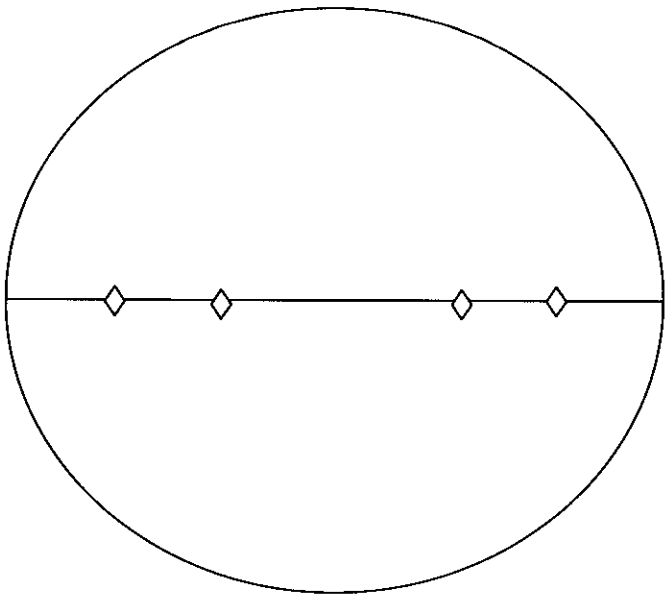
Scientist/Technician Name	Position	Qualification	Technical Endorsements	MCERTS Number
Ewa Piatek	Technician	Level 1	TE1, TE2, TE3, TE4	MM07 799
Patrick Power	Technician	Trainee	-	MM12 1183

6.2. Equipment used

Equipment
TCR Tecora
Probe
Impinger Set

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	%

8. Annex 3

8.1. Results and uncertainty calculations, certificates of analysis

GLENSIDE
ENVIRONMENTAL SERVICES
Environmental and Engineering Consultants

Glenside Environmental,
Unit 7,
Westpoint Buildings,
Ballincollig,
Cork
T: 021-4875183
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: 012-050-02 Rev.1

Monitoring Date: 20th July 2012

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

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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 Ammendment 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+Tl)
	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.

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+Tl)	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

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	11:44-11:49
Blank	Mercury	n/a	n/a	0.0006	<0.0006	n/a	n/a	20/07/2012	11:50-11:55
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

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

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

7. Annex 1

7.1. Personnel

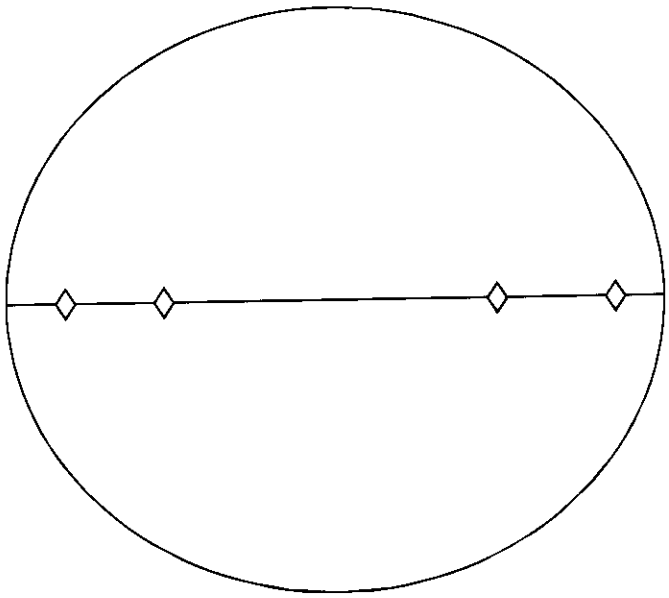
Scientist/Technician Name	Position	Qualification	Technical Endorsements	MCERTS Number
Ewa Piatek	Technician	Level 1	TE1, TE2, TE3, TE4	MM07 799
Patrick Power	Technician	Trainee	-	MM12 1183

7.2. Equipment used

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

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	%

9. Annex 3

9.1. Results and uncertainty calculations, certificates of analysis

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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: 012-050-03

Monitoring Date: 30th August 2012

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

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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.

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+Tl)	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

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+Tl)	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	10:59-11:03
Blank	Mercury	n/a	n/a	0.0016	<0.0016	n/a	n/a	30/08/2012	11:55-11:58
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	0.0031	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

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

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

7. Annex 1

7.1. Personnel

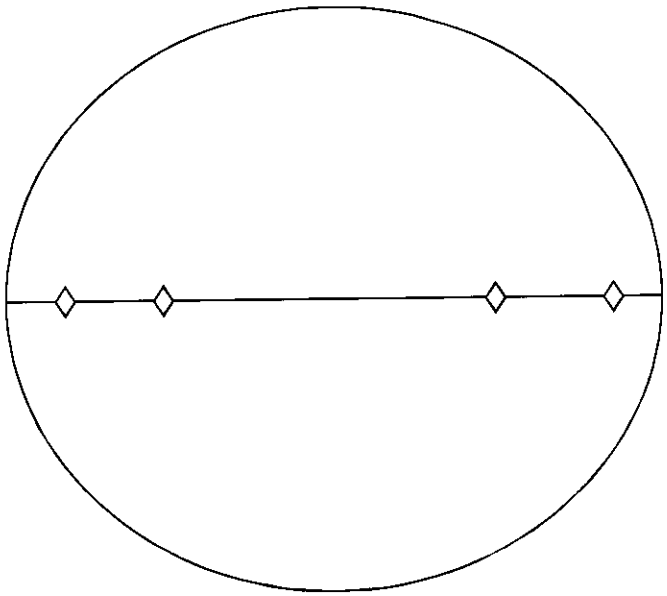
Scientist/Technician Name	Position	Qualification	Technical Endorsements	MCERTS Number
Ewa Piatek	Technician	Level 1	TE1, TE2, TE3, TE4	MM07 799
Patrick Power	Technician	Trainee	-	MM12 1183

7.2. Equipment used

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

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	%

9. Annex 3

9.1. Results and uncertainty calculations, certificates of analysis

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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: 012-050-04

Monitoring Date: 28th September 2012

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

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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

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+Tl)	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

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

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

7. Annex 1

7.1. Personnel

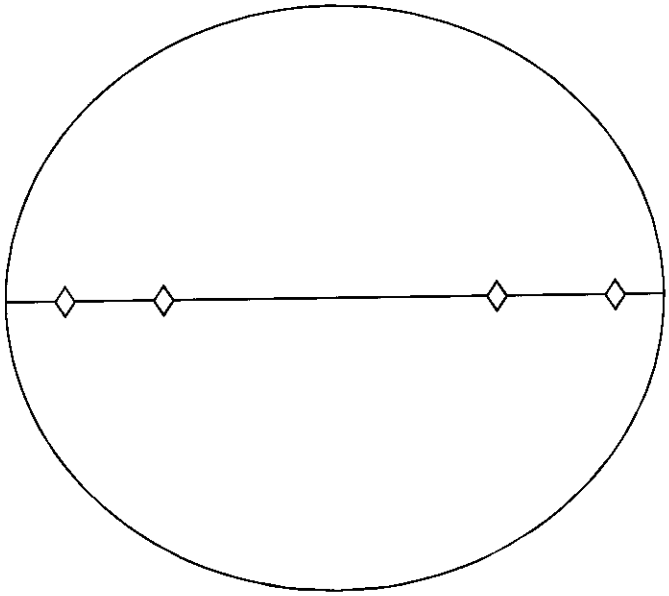
Scientist/Technician Name	Position	Qualification	Technical Endorsements	MCERTS Number
Ewa Piatek	Technician	Level 1	TE1, TE2, TE3, TE4	MM07 799
Patrick Power	Technician	Trainee	-	MM12 1183

7.2. Equipment used

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

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	%

9. Annex 3

9.1. Results and uncertainty calculations, certificates of analysis

Glenside
Environmental
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Environmental and
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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

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

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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.

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.

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

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	10:30-10:36
Blank	Mercury	n/a	n/a	0.0005	<0.0005	n/a	n/a	17/12/2012	1231-12:37
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

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

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

7. Annex 1

7.1. Personnel

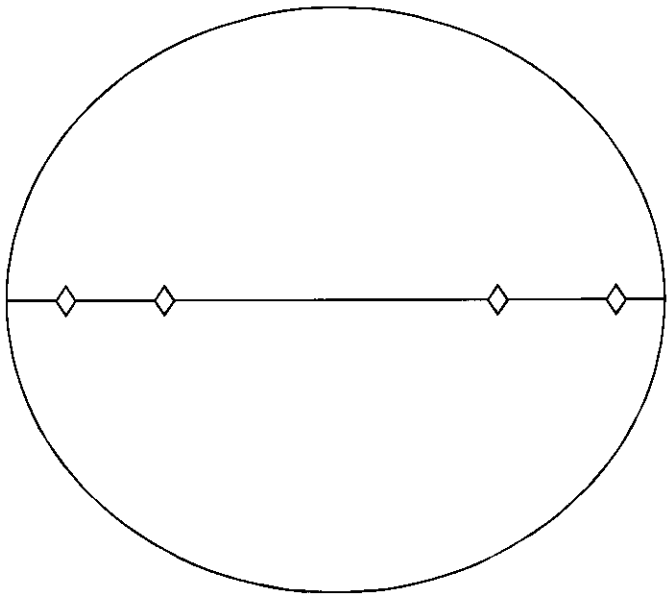
Scientist/Technician Name	Position	Qualification	Technical Endorsements	MCERTS Number
Ewa Piatek	Technician	Level 1	TE1, TE2, TE3, TE4	MM07 799
Patrick Power	Technician	Trainee	-	MM12 1183

7.2. Equipment used

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

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	%

9. Annex 3

9.1. Results and uncertainty calculations, certificates of analysis

APPENDIX 6

Noise Monitoring Report 2012

Noise Report for

KMK METALS RECYCLING LTD.

W0113-03

CAPPINCUR INDUSTRIAL ESTATE, DAINGEAN ROAD, TULLAMORE, CO. OFFALY

October 2012

EXCELLENCE THROUGH PEOPLE STANDARD

Printed on Recycled Paper

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Appendix B Calibration certs for noise meter and calibrator

1.0 INTRODUCTION

ENVIROCO Management has been commissioned by Ms Charlotte Walker of KMK Metal Recycling Ltd (KMK), Cappincur Industrial Estate, Tullamore, Co Offaly; Waste Licence Number W0113-03 to submit an environmental noise survey as required by the facilities licence conditions.

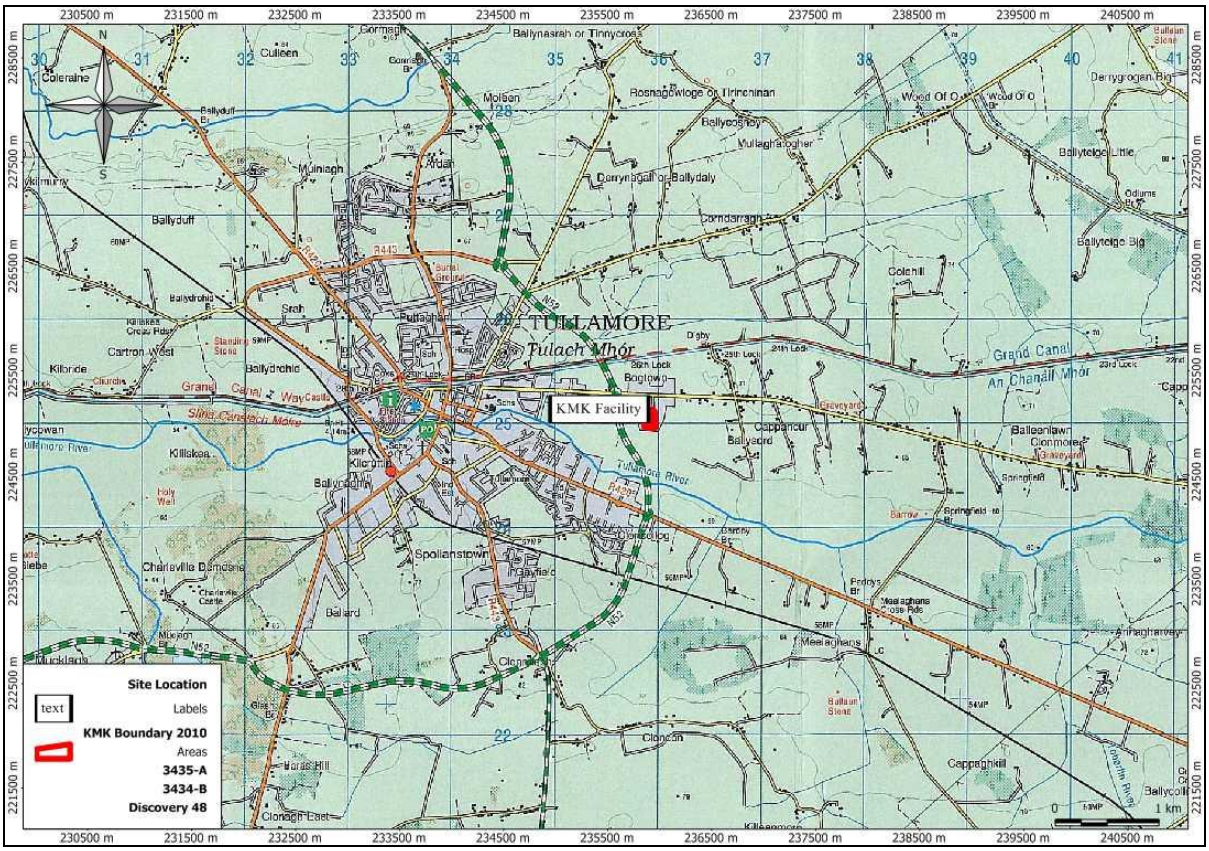


Figure 1.1: Site Location map of the KMK Metals Facility, Tullamore, Co. Offaly

The KMK facility is located in the Cappincur Industrial Estate towards the east of Tullamore town, off the L-02025 road to Daingean – Figure 1.1. The Cappincur Industrial Estate is dominated by enclosed industrial units, with little mobile machinery operating outside of these units.

The objectives of the environmental noise survey were to:

- Investigate the noise emissions arising from the facility during a typical working day as part of the waste licence operations.
- Assess the noise emissions in terms of nuisance or pollution potential on the immediate environment around the KMK facility.

1.1 ENVIRONMENTAL MONITORING

ENVIROCO was commissioned by KMK to carry out environmental noise monitoring.

Monitoring occurred on Thursday 30th August 2012. Monitoring took place during the course of a normal working day.

2.0 NOISE SURVEY

Noise has many sources, both manmade and environmental. Noise is observer defined, as levels unacceptable to one person may be perceived as necessary or enjoyable to another. As such the monitoring of noise is primarily an observational discipline requiring a full identification of the sources of possible noise and the type of sound that is been emitted (continuous, intermittent, tonal, broad-spectrum, single source, multiple source). The Environmental Protection Agency (EPA) has adopted a noise level (as a continuous equivalent noise reading – Leq) of 55 dB(A) as an indicator of annoyance due to noise arising from industrial activity. This level is given at the receptor or noise sensitive location (NSL). Monitoring of noise at the KMK Metals facility in the Cappincur Industrial Estate, Tullamore, took into account both the nature of the site, the history of the site, the intensity of the operations and the proximity of local sensitive receivers. Monitoring was carried out mid-week during the hours of 6am to 4 pm. The facility does not have operations 'over night', activities do commence prior to 8am, which under their licence terms is 'night –time'. For this reason early morning measurements were conducted to assess if the night time limits were likely to be breached by these activities.

This noise monitoring programme is on the back of condition 6.11 'Noise' parts:
6.11.1 The licensee shall carry out a noise survey of the site operations annually. The survey programme shall be undertaken in accordance with the methodology specified in the 'Environmental Noise Survey Guidance Document' as published by the Agency.

6.11.2 The licensee shall implement any noise attenuation measures as required by the Agency, having regard to the principles of BAT, to ensure compliance with the noise limits specified in this licence.

Schedule B.4 Noise Emissions, states that daytime measurements must be within a $L_{Aeq\ (30\ minute)}$ emission level of 55, and night-time measurements must be within a $L_{Aeq\ (30\ minute)}$ emission level of 45, with no clearly audible tonal component or impulsive component in the noise emission from the activity at any boundary location.

Schedule C5 identifies the locations NE1 – NE5, as specified on Map I.6.1, submitted with the application as the monitoring stations to be utilised, and the following parameters to be reported on: $L_{(A)eq[30\ minute]}$, $L_{(A)10[30\ minute]}$, $L_{(A)90[30\ minute]}$ and 1/3 Octave Band analysis. To be monitored on an annual basis from the facility.

To ensure that all monitoring positions could be adequately monitored, and based upon normal best practice for night-time measurements, as issued by the EPA and others, the night time measurement period was reduced from the issued 30 minute to a 15 minute period.

This monitoring event took into account the released EPA guidance document NG4 'Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities' released in April 2012. This document seeks a notable increase in the repetitiveness of monitoring during the annual event. A request was submitted to the EPA and approved, requesting the reduction in monitoring stations on site from the licensed 6 stations to 4. This alteration would enable a reasonable monitoring time on site, reduce unnecessary repetitiveness of close proximity monitoring stations and give a fair indication to the noise arising from site activities during a normal operating day.

2.1 METHODOLOGY

Noise monitoring was carried out to the International Standard ISO 1996/1 "Acoustics – Description & measurement of environmental noise", using a Type 1 Bruel Kjaer 2250 Sound Level Meter with outdoor equipment that was fully calibrated prior to and after the monitoring event. The meter was set to Fast Response with an effective averaging time of 0.25sec during noise monitoring. All noise monitoring was 'A' weighted which attenuates low frequencies strongly so noise measuring is more specific to human hearing and environmental noise.

Noise monitoring was carried out on Thursday 30th August 2012. Each monitoring location is identified on the map shown in Figure 2.1.1.

Weather conditions during the early morning were overcast, dry and cool with no perceptible wind. The later measurements were taken during cool calm and clear day, with showers threatening in the late afternoon, but no persistent precipitation.

Table 2.1.1: Met Eireann Weather Report

REPORTS FROM GURTEEN WEATHER STATION						
Date	**Rainfall (mm)**	**Max Temp**	**Min Temp**	**Sunshine (hours)**	**Gusts**	**Wind speed**
30/08/2012	0	16.4	7.4	-	-	8.3 knots

Local weather conditions were recorded on a Davis Vantage Vue weather station, located in the town of Tullamore. Data from 00:10 am to 11:50pm were collected and are displayed below:

Table 2.1.2: Vantage Vue Weather Station Data 5am to 2pm

Date	30/08/2012			
Start Time	00:10:00		**Finish Time**	23:50:00
Temperature	12.97		**High Temperature**	17.00
			Low Temperature	9.90
Humidity	81.34		**Dew Point**	9.65
Wind Speed	0.58		**High Wind Speed**	5.40
Wind Direction	West		**Bar**	658.37
THW Index	12.85		**Wind Chill**	12.97
Rain	0.00		**Rain Rate**	0.00

Temperature in ºC, Wind speed in m/s, rainfall in mm

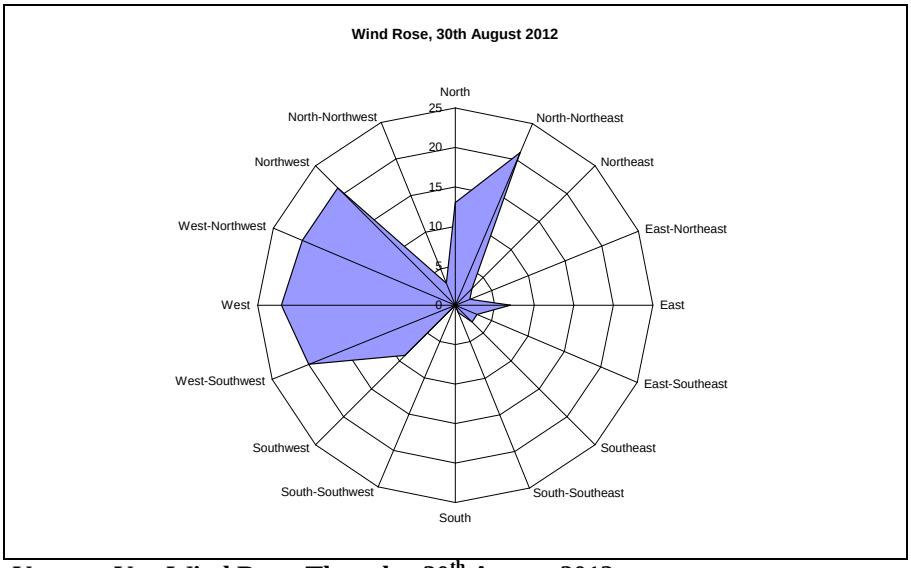


Chart 1: Vantage Vue Wind Rose, Thursday 30th August 2012

The monitoring equipment was manned throughout the sampling period and comments/notes taken to assist the interpretation and assessment of results.

Sampling was carried out at 4 locations along the facilities boundaries where accessible (Figure 2.1.1). ENVIROCO Management staff selected these monitoring locations in accordance with Schedule C Control and Monitoring of KMK Metals waste licence conditions (W0113-03) and correspondence with the EPA ahead of the monitoring event.

The monitoring locations were:

NE001: Car park at fence boundary – northern boundary
NE002: Eastern boundary, beside disused portacabin
NE003: Rear of the facility buildings – Southern boundary
NE004: Adjacent the working yard area – Western boundary

Table 2.1.3: Grid Reference Points of Noise Monitoring Positions

Monitoring Locations	Grid Reference (IG)	
	Easting	Northing
NE001	235934	225122
NE002	235958	225003
NE003	235888	224954
NE004	235856	224998

Repeated measurements are denoted with a post-fix alphabetical unit, to clearly distinguish at which monitoring period an event occurred.

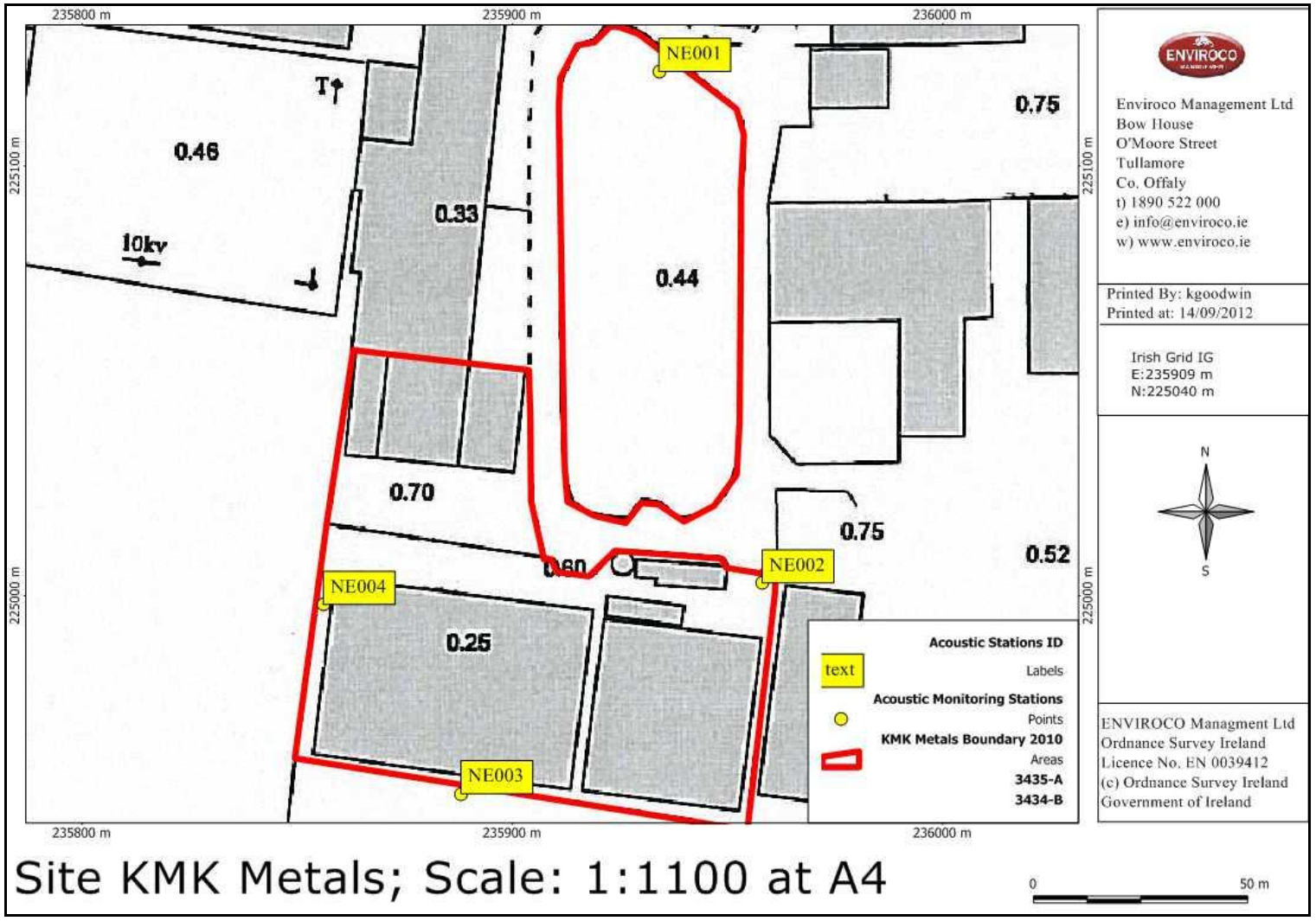


Figure 2.1: Noise Monitoring Locations at KMK Metal
[Note noise monitoring stations have an accuracy of $^{+}$/- 5 meters]

2.2 RESULTS

The complete set of noise measurement results is included in Appendix A. These are summarised and discussed below. Each station is identified as per the licence guidance (NE00x) with an additional lower case letter for the repeat of each station (i.e. 'a' is the second sampling period, 'b' is the third sampling period).

Table 2.2.1 Night Time Noise Record 15 minute measurements

Location	Start Time	L_{Aeq}	Comments
NE001	06:05	45	**Background Noise**: (06:05-06:11) No site activity audible. Trucks & cars on N52, distant dog barking, distant bird song Van being opened / closed at nearby business **General Noise:** (06:11 site forklift heard) (06:15 machinery audible on site)
NE002	06:24	52	**Background Noise**: Very distant **General Noise:** Site activities – forklifts, metal being mixed, plant operating (cranes), Very low hum audible from effluent treatment plant @ close proximity (100 Hz)
NE003	06:44	59	**Background Noise**: Faint **General Noise:** Forklift / small bucket locater clearing floor area at building. Hum/vibration audible from building, extraction unit audible occasional reversing alarms
NE004	07:01	65	**Background Noise**: Faint **General Noise:** Crushing and separation plant audible, reversing alarms, forklifts, dogs audible at pound
NE001a	07:20	61	**Background Noise**: Forklifts operating outside walls, N52 traffic, Truck idling at neighbouring courier's business **General Noise:** Plant & machinery at main facility (stopped 07:23), JCB loader collecting material from bay at new 'E' building
NE002a	07:39	60	**Background Noise**: Faint **General Noise:** Forklift, processing activities, reversing alarms, metal being moved, (07:51 – metal screech)
NE003a	07:59	60	**Background Noise**: Traffic on N52 audible (D3X Fan off) **General Noise:** Processing activities, Engine/compressor available in ABC Building, Material falling through filter, Filter extraction from @ D3X, Forklifts and reversing alarms
NE004a	08:16	60	**Background Noise**: Traffic on N52 (including tractor pulling trailer @ high speed) **General Noise:** D3X processing available, Forklifts audible

Table 2.2.2 Day Time Noise Record 30 minute measurements

Location	Start Time	L_{Aeq}	Comments
NE001	08:36	59	**Background Noise**: Angle grinder on/off at Robe Design adjacent station. Truck engine at couriers – moving off after 4 minutes. **General Noise:** Reversing alarm and engine noise from JCB mini-loader working in E yard. Radio audible but indistinct, 8:52 – truck starting, leaving E area
NE002	09:09	69	**Background Noise**: Faint **General Noise:** Processing activities, Forklift movements, Reversing alarms, metal/ boxes being moved, Horns sounding, Movement of plastic boxes via forklift – empty boxes bounding on lift arms
NE003	09:44	60	**Background Noise**: Very occasional birdsong **General Noise:** Compressor / engine at ABC building. Metal/items falling through extractor system at D3X. Forklifts and reversing alarms.
NE004	10:18	65	**Background Noise**: Dog pound (barking), Truck movements neighbouring skip yard **General Noise:** Processing within D3X, Reversing alarms, HGV traffic N52, Air vent, Railing rattle during wind gusts, Activity from processing started up again 10:45.
NE001a	10:54	63	**Background Noise**: Faint **General Noise:** Maintenance on railing, Generator (92db) – label on generator, Talking between workers, Angle grinder, Reversing sirens (faintly), Faint hum machinery, Traffic movement in carpark & outside
NE002a	11:29	68	**Background Noise**: Faint **General Noise:** Traffic movement – forklifts in and out, lorries outside, reversing sirens, Processing – hammering noises, Building behind offices (ABC), Hanger style building (E), Manual movement of containers (rolling over concrete), Beeping 11:48 – lorry
NE003a	12:03	61	**Background Noise**: Faint **General Noise:** Processing inside building, Extraction noise material falling inside, Reversing alarms – forklifts, Hum of building D3X
NE004a	12:36	66	**Background Noise**: Dog pound – barking, Agricultural machinery on N52 & HGVs, **General Noise:** Processing inside D3X building, Faint hum from building, Reversing alarms
NE001b	13:10	65	**Background Noise**: Faint **General Noise:** Talking of workers, Traffic – construction of railing around carpark, 'Arcgen' mobile generator (LWA 92 dB), Metal gate dragged on concrete, Long reversing alarm @ site c 45 seconds, Mechanical Bolter working on gate – fixing railing to concrete wall)
NE002b	13:43	66	**Background Noise**: Faint **General Noise:** Reversing alarm, Forklift movements, Processing @ ABC, Truck engine idling @ D yard area, Truck movement in yard areas
NE003b	14:59	55	**Background Noise**: Traffic on N52 audible **General Noise:** Extractor fan working, Forklift & movements audible, Compressor / generator operational in ABC building,

Location	Start Time	L_{Aeq}	Comments
NE004b	15:33	57	**Background Noise**: Faint **General Noise:** Plant operating inside D3X, Road traffic, fan emissions, Majority of site activities stopped by 3:45.

Table 2.2.3: Broadband Noise Results

	Project Name	LAeq	LAF10.0	LAF90.0
Night Time (15 minute)	NE001	45	47	40
	NE001a	61	63	55
	NE001avg	**53**	**55**	**47**
	NE002	52	55	50
	NE002a	60	63	57
	NE002 avg	**56**	**59**	**53**
	NE003	59	60	57
	NE003a	60	63	53
	NE003 avg	**60**	**61**	**55**
	NE004	65	67	62
	NE004a	60	64	56
	NE004 avg	**63**	**65**	**59**
Day Time (30 minute)	NE001	59	62	49
	NE001a	63	65	56
	NE001b	65	69	57
	NE001 avg	**62**	**65**	**54**
	NE002	69	72	61
	NE002a	68	71	61
	NE002b	66	70	58
	NE002 avg	**68**	**71**	**60**
	NE003	60	63	57
	NE003a	61	63	58
	NE003b	55	56	50
	NE003 avg	**59**	**61**	**55**
	NE004	65	68	56
	NE004a	66	68	60
	NE004b	57	59	53
	NE004 avg	**63**	**65**	**56**

Table 2.2.4: 1/3 Octave Noise Results 'Night-Time'

	Project Name	NE001	NE001a	NE002	NE002a	NE003	NE003a	NE004	NE004a
	Start Time	06:05	07:20	06:24	07:39	06:44	07:59	07:01	08:16
Frequency	**12.5**	53	52	49	50	61	60	56	57
	16	51	51	49	51	66	64	56	56
	20	49	53	47	50	68	67	56	57
	25	48	62	51	54	68	67	69	71
	31.5	46	67	48	52	75	73	65	61
	40	49	67	48	56	66	65	59	58
	50	49	66	51	62	66	66	61	60
	63	45	61	49	54	67	65	62	58

Project Name	NE001	NE001a	NE002	NE002a	NE003	NE003a	NE004	NE004a
Start Time	06:05	07:20	06:24	07:39	06:44	07:59	07:01	08:16
80	49	62	48	57	66	65	60	58
100	41	57	60	60	61	59	62	57
125	38	54	46	56	62	60	63	58
160	41	55	45	56	62	60	64	57
200	37	52	45	53	60	58	62	55
250	41	52	45	53	53	53	59	53
315	36	52	46	51	53	52	59	52
400	37	52	45	53	50	51	57	50
500	37	51	44	53	50	52	58	51
630	37	50	43	51	50	50	55	51
800	37	50	43	50	48	50	55	52
1k	36	52	42	51	47	50	55	52
1.25k	35	57	43	52	48	51	55	51
1.6k	33	48	41	50	45	48	54	49
2k	30	46	40	48	44	47	54	48
2.5k	26	44	39	49	44	47	53	45
3.15k	25	43	40	46	43	45	50	41
4k	21	40	34	43	40	43	48	38
5k	17	37	31	40	38	42	45	36
6.3k	14	34	27	35	37	40	42	34
8k	13	32	24	32	33	38	38	30
10k	12	27	19	26	31	36	35	27
12.5k	11	22	15	19	29	33	29	22
16k	9	15	11	13	24	28	22	16
20k	9	12	10	11	19	23	16	14

Table 2.2.5: 1/3 Octave Noise Results 'Day-Time'

Frequency (Hz)	Project Name	NE001	NE001a	NE001b	NE002	NE002a	NE002b	NE003	NE003a	NE003b	NE004	NE004a	NE004b
	Start Time	08:36	10:54	13:10	09:09	11:29	13:43	09:44	12:03	14:59	10:18	12:36	15:33
	12.5	62	65	62	60	63	62	61	62	54	68	66	64
	16	60	63	61	59	62	61	65	65	57	66	65	63
	20	60	61	59	58	65	64	67	67	59	65	63	62
	25	70	63	61	60	65	67	68	71	67	68	73	72
	31.5	63	68	68	59	63	65	75	73	64	64	64	61
	40	63	64	65	63	64	63	66	66	58	61	61	60
	50	63	69	70	68	68	66	66	66	60	61	63	60
	63	58	73	74	63	61	61	66	66	58	61	60	57
	80	58	67	67	66	64	61	65	65	57	61	61	56
	100	56	59	59	65	62	62	60	61	55	61	62	56
	125	53	57	60	63	61	58	61	61	53	63	64	57
	160	54	57	60	64	64	61	62	62	55	64	64	55
	200	51	54	58	64	62	59	58	58	55	62	62	52
	250	51	57	60	62	61	59	53	54	48	59	61	51
	315	49	57	61	60	61	58	54	54	50	58	59	51
	400	50	53	54	60	60	58	52	53	46	58	58	48
	500	50	53	54	60	60	59	52	53	47	58	58	48
	630	48	52	53	59	59	57	51	51	47	56	56	48
	800	48	50	53	58	58	57	50	50	44	55	56	50
	1k	50	49	52	59	58	57	49	50	44	55	55	50
	1.25k	54	50	56	58	58	56	49	51	44	55	55	47
	1.6k	46	51	53	57	56	55	48	49	42	54	54	45
	2k	45	48	53	56	55	54	48	49	41	54	55	43
	2.5k	43	50	52	56	55	55	47	48	40	52	53	40
	3.15k	42	51	52	57	55	54	45	46	39	48	49	38
	4k	40	51	52	52	51	49	43	45	36	45	47	35
	5k	40	48	52	49	48	45	42	43	35	41	43	32
	6.3k	33	48	51	47	46	43	41	42	32	37	40	30
	8k	32	51	49	45	44	40	38	39	31	33	36	28

	Project Name	NE001	NE001a	NE001b	NE002	NE002a	NE002b	NE003	NE003a	NE003b	NE004	NE004a	NE004b
	10k	33	48	47	40	40	36	35	36	28	29	33	27
	12.5k	25	45	43	38	37	33	32	33	27	24	28	24
	16k	25	40	46	36	35	30	30	30	27	21	24	21
	20k	16	37	44	35	33	26	27	28	23	20	21	20

2.3 DISCUSSION

There are currently no statutory limits for the control of environmental noise in Ireland. However, the EPA has issued limits on noise generated from the activities at the KMK facility of $L_{Aeq(30\ minutes)}$ of 55 dB during the day-time (0800 to 2200 hours) and 45 dB during the night-time (2200 to 0800 hours). The EPA documents 'Guidance Note for Noise in Relation to Scheduled Activities 2nd Edition, 2006', now revised to 'Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4), released in April 2012, and the EPA 'Environmental Noise Survey Guidance Document, 2003' have been reviewed in the preparation of monitoring on site. These documents stipulate that night-time measurements should be taken over a shorter period, of 5-15 minutes.

The revised guidance note on noise from licensed activities (NG4), requires additional monitoring to be conducted at licensed facilities, increasing night time to a minimum of 2 monitoring periods per station, and daytime to a minimum of 3 monitoring periods per station. Due to the number of scheduled stations within the KMK facility, the EPA were contacted regarding the option for streamlining the number of stations for this assessment. This proposal was accepted by their EPA officer – Mr Dermot Burke, and resulted in a reduction from 6 to 4 monitoring stations. This proposal was sought to enable all stations to be accurately monitored, when some activity was occurring on site. This enabled all 4 site locations to be monitored, though for $L_{Aeq\ 15\ minute}$ periods at night, rather than the licensed $L_{Aeq\ 30\ minute}$ intervals, and day-time stations to be monitored 3 times during the normal working day at the facility.

Noise monitoring was carried out between the hours of 6am and 4 pm. Noise sources from the plant, audible at the site boundaries have been identified as:

- Vehicles entering/leaving the site
- Personnel entering/leaving buildings
- Unloading and loading of trucks with waste materials
- The movement of fork lift trucks in the process areas
- Reversing alarms from forklift trucks
- Operation of the baler unit for Large Household Appliances (LHA).
- Operations from construction of a steel structure at a neighbouring industrial unit.

The KMK facility is located within the Cappincur Industrial Estate, Tullamore. This industrial estate includes warehousing, commercial/industrial and waste management operations with Tullamore Steel, Palace Kitchens, Modified Motors, Ravenhill Couriers, Robedesign and Condron Car Dismantlers and a number of other businesses, all located within a relatively close proximity to the KMK site. These other occupants all have noise associated with their activities and this results in a cumulative noise impact within the industrial estate e.g. all warehousing environments require controlled ventilation and air supply, and therefore there is noise associated with these fans, car dismantlers use angle grinders, acetylene torches, fork lift trucks and other ancillary activities e.g. vehicle movements. Motor modification shops result in loud noise from engine tests/revving noises etc.

During the early morning measurements (prior to 8am) noise levels varied from a $L_{Aeq(15\ minute)}$ of 45-65 dB, with the highest levels occurring to the west at station NE004 (65 and 60dB). The night-time monitoring shows an incremental increase in noise values from 6am to a L_{Aeq} peak at 7am at station NE004. From 7am to 8am the values reduce and become relatively similar at all 4 monitoring stations, with a $L_{Aeq(15minute)}$ range from 60-61 dB. All monitoring stations are site boundary.

The day-time measurements (8am to 4pm) show a variation in $L_{Aeq(30\ minute)}$ of 55 to 69 dB, with the higher values recorded on the western stations. NE002 (66-69 dB), located adjacent the site main offices with views of work sheds A,B&C and movement of forklifts and vehicles on site working areas.

Station NE001, located on the northern boundary, experienced construction/maintenance activities during the day-time monitoring event. These activities centred around the finishing works on the new boundary wall. Activities included the movement of metal railings and gate, use of a mobile generator, hammering and use of hand tools. Site activities at this station were audible but typically faint compared to these local actions. $L_{Aeq(30\ minute)}$ values ranged from 59-65 dB at NE 001 during the day.

Stations NE 003 and 004 both show a noticeable drop in noise levels on the third measurement period, occurring after 3pm. This drop off in levels corresponded to a notable reduction in activity within the site work buildings, and movement of vehicles within the facility yards. $L_{Aeq(30\ minutes)}$ between 3 and 4pm ranged rom 55-57 dB.

Stations NE 003 and 004 show noise levels between 9:45 to 1pm of a $L_{Aeq(30\ minute)}$ ranging from 60-66 dB. During these monitoring events full site activity was noted at these stations.

The noise generated during these operations is not likely to be a source of disturbance to neighbouring properties as it is known that noise dissipates over distance, and for point source emissions, there is a decrease in 6dB(A) for every doubling in distance away (see table 2.3.1 below).

Table 2.3.1: Attenuation of Noise over Distance for point source emissions e.g. industrial sources

Distance m	Noise level dB	Noise Level dB
10	70	65
20	64	59
40	58	53
80	52	47
160	46	41

The noise levels on site range from a night-time $L_{Aeq\ (15\ minute)}$ of 45 dB to a $L_{Aeq(15\ minute)}$ of 65 dB. This is equivalent to the noise arising from roadside traffic at 15 meters. The KMK facility is located within an urban zone of acoustic influence. There are no notable housing estates within close proximity to the Cappincur Industrial Estate, nor is there identified houses positioned at significant distance from local road infrastructure, that would bring said dwellings closer to the Cappincur Industrial Estate. It is therefore reasoned that dwellings located along the local road to the north experience noise from the urban traffic movements in/out of Tullamore

Town, vehicle movements associated with the Cappincur Industrial Estate, and the daily movement of traffic on the National N52 by-pass road of Tullamore, located to the west of the Cappincur Industrial Estate.

Approximate distances from the peak $L_{Aeq\ (30minute)}$ station to the closest dwelling, located northeast, is 240metres. Distances from the closest operational zones, the E-Area, located along the northern section of the site, is approximately 200m to the closest dwelling, again located to the northeast.

The table below is a standardised acoustic ratings table, utilised to characterise the dB scale to those not familiar with the logarithmic nature of the scale or the standarised reference values of 'Threshold of hearing or pain'.

Table 2.3.2: Sound Levels from Typical Sources

Sound Pressure level dB(A)	Typical source
120	Jet take off at 50m
100	Pneumatic Drill
90	Generator hall
80	Light machine shop, Heavy Truck at 15m
70 – 60	Light traffic (cars) at 15m
60	Office Noise
40	Library
20	Rural evening

3.0 OCTAVE BAND ANALYSIS AND DISCUSSION

Octave band analysis of noise is the breakdown of the sound pressure readings, as recorded on site, into specific frequency band widths. This enables a greater understanding of the type of noise evident at a site and can give indications to where tonal noise is present. There are two common forms of octave analysis. Full octave analysis groups sound pressure readings into frequency readings that cover a full octave. This type of monitoring gives a good general description of how people will perceive a sound/noise. One third octave analysis, further separates the noise reading into $^1/_3$ octave frequency groupings. Each frequency reading is given in Hz. The frequency reading is the central frequency for each band that is been monitored (i.e. Frequency band 250 Hz covers all sound pressure readings recorded between 167Hz to 333Hz). 1/3 octave analysis of noise enables the identification of tonal components present at a site. Long duration tonal noise is typically found as more aggravating to nearby sensitive receivers than broad spectrum noise sources and control measures can be used to minimise the annoyance caused by tonal sources.

3.1 OCTAVE ANALYSIS

The scope of this noise assessment is to evaluate the noise arising from the KMK facility within the Cappincur Industrial Estate, Daingean Road, Tullamore, Co. Offaly. Full results of the 1/1 octave analysis are shown in Appendix A, including charted results for each location. These results and charts are discussed below. The overview chart of all monitoring stations shows a similar trend at most locations when compared between night (before 8am) and day (after 8am).

The night time measurements show a close relationship between the $L_{Aeq\ (15minute)}$ and the $L_{A10\ (15\ minute)}$ values. This is in character for stations that have a general noise environment rather than short peak or bursts of noise. During the early morning measurements, most noise arose from the arrival of workers and the starting of machinery. The low to high $L_{A90\ (15\ minute)}$ values, which range from 40-62 reveal a significant rise in background acoustic environment from 6:00 to 07:15am before a general settling out in at approximately 56dB(A). The primary broadband statistical data all follow a similar trend of steadily increasing sound pressure from 6am to 7am where levels peak, prior to a drop and levelling out process from 7am to 8am.

Day-time background measurements begin relatively low for the urban / industrial zone at L_{AF90} of 49dB, peaking at a sound pressure of 61dB(A) at station NE002. Typical values throughout the day range from a L_{AF90} of 56-58 dB. These background levels were influenced by the ongoing operations at the KMK main processing areas, movement of vehicles on site, movement of vehicles within the Cappincur Industrial Estate, and the movement of traffic on the N52 to the west.

Levels at boundary stations show relatively similar results during the day monitoring period, with reference to the main statistical parameters – LAF90, LAF10, LAeq. The overall assessment of the acoustic environment, done with repeated measurements at all stations, does not indicate that likely nuisance from noise is present at sensitive receptors to the site.

3.2 $^1/_3$ OCTAVE ANALYSIS

1/3 Octave analysis is a method of analysing the recorded sound pressures to identify if tonal features are present. This analysis is done without tonal weighting (i.e. Z-weighting) to ensure that low or high frequency tones are not diminished and that mid level tones are not elevated (as would occur with A or C weighting).

NG4 guidance document states that tonal elements can be identified by the variation in one 1/3 octave band to its neighbouring two bands by a minimum value. This minima varies depending upon the frequency band, mid and higher frequency tones been more audible than lower frequency bands. The variation is given as:

- 15dB in low-frequency one-third-octave bands (25Hz to 125 Hz)
- 8dB in middle-frequency one-third-octave bands (160Hz to 400Hz)
- 5dB in high-frequency one-third-octave bands (500Hz to 10,000Hz)

Reviewing the 1/3 octave data for the site stations, there was only 1 measurement that identified a tone under this guidance. NE001a during, taken at 07:20am shows an identified frequency at 1.25kH, with a value of 57dB(Z). This station was located to the north, along the site boundary. No particular tones were audible by the acoustician during this monitoring period, other than the truck 'ticking over' outside the KMK boundary wall. Taking in the distance present from station NE001 to the closest sensitive receptor(s), dwellings located along the local road, this tone, due to its relatively low pressure value, will not be audible.

The table below lists the tones identified from the monitoring occurring at the KMK facility on 30th August 2012.

Table 3.2.1: Tonal Features Identification

Monitoring Station	**Night-time Tonal Features (Frequency & Pressure)**	**Day-time Tonal Features (Frequency & Pressure)**	**Comments**
NE001	57 dB at 1.25 kHz, at 07:20-07:35	No identified tones	No tone recorded by acoustician, other than an 'idling truck' outside the KMK boundary wall.
NE002	No identified tones	No identified tones	-
NE003	No identified tones	No identified tones	-
NE004	No identified tones	No identified tones	-

A single tone was recoded by the sound level meter on site. This tone was only found at one station, NE001, and only during one measurement at 7:20. The only item identified as tonal by the acoustician at this time was a truck engine ticking over outside the boundary walls of the KMK facility. This tone was not detected at any other time, or at any other station. The actual sound pressure level of the tone is low enough, that it is not likely that dwelling houses, located over 150 meters from this station, would find it audible, due to the attenuation of the sound over distance.

No other tones, utilising the EPA NG4 guidance parameters, were recorded or identified during the monitoring day. No impulsive noise was identified at the site during the monitoring period.

It is therefore not necessary to weight the recorded L_{Aeq} results for the relevant stations.

4.0 CONCLUSIONS

Environmental noise monitoring was carried out by ENVIROCO Management Ltd at the KMK Metals Recycling Ltd facility situated within the Cappincur Industrial Estate, Daingean Road, Tullamore, Co. Offaly, on the 30th August 2012. Monitoring was requested by Ms. Charlotte Walker of KMK as required by the conditions of their waste licence (W0113-03) for submission to the Environmental Protection Agency.

Noise monitoring was conducted utilising the Type 1 Bruel Kjaer 2250 SLM with wind muffler noise meter. This monitor operates as a Real Time Analyser (RTA) and Sound Level Meter (SLM), enabling both statistical analysis of the audible noise and breakdown of the sound pressure recorded into frequency bandwidths.

The closest noise sensitive receptors are located adjacent the Cappincur – Ballinagar local road to the north, these houses are approximately 220 to 240 meters distance from the closest noise.

Early morning (night time) measurements were taken over 15 minute intervals at EPA agreed 4 monitoring stations. The $L_{Aeq(15minute)}$ results for these stations show that noise levels after 7am were highest. Levels are not of sufficient level to breach the EPA limits of 45 dB(A) at sensitive receptors.

The majority of stations recorded show relatively similar results, with $L_{Aeq\ (15\ minutes)}$ typically ranging from 52 to 60 dB and $L_{Aeq\ (30\ minutes)}$ typically was ranging from 59-66 dB.

Peak L_{Aeq} readings during the early morning (nigh-time) were recorded at NE004 on the west boundary. This was attributable to ongoing activities at all nearby work sheds and radio's playing.

Peak L_{Aeq} readings during the day were recorded at NE002, on the east boundary. This was attributable to view into the work buildings of A, B and C, and the proximity of forklift movements in and around the office area.

The distance from the site activities to sensitive receptors, the obstacles present (other buildings, walls, hedging) and the proximity to other noise sources (closer industrial units, road traffic) would indicate that the noise levels recorded at the KMK facility are not likely to cause annoyance at Sensitive Receptors.

1-3 Octave Band Analysis of the day and night measurements show no recurring tonal aspect (tone present at more than 2 locations, or present at the same location on more than 1 monitoring event).

Tones were identified at 1 station- NE001. The relatively low sound pressure that the tone had, would indicate that these tonal features would not be evident at sensitive receptors.

The results of the noise survey show that noise emissions from the KMK facility are not significant and will not have any negative effect of neighbouring businesses.

Appendix A

- **Noise Results & Charts**

Noise Results

Client: KMK Metals Recycling Ltd
Site: Cappincur Industrial Estate, Daingean Road, Tullamore, Co. Offaly
Monitoring Date: Thursday 30th August 2012
Sampler: Kenneth Goodwin (ENVIROCO Management Ltd)
Weather: Overcast, dry, cool, no wind
Equipment: Type 1 Bruel Kjaer 2250 SLM with wind muffler

Notes

Table 1 Notes Regarding Monitoring Positions

Number	Grid Ref.*		Comments
	Easting	Northing	
NE001	0635878	0725150	Northern boundary, adjacent employee car-park
NE002	0635900	0725030	Eastern boundary, adjacent site office
NE003	0635830	0724981	Southern boundary, rear of the site
NE004	0635797	0725026	Western boundary, adjacent the D3X building, and work yards.

*Grid reference are 6 figure ITM reference

Table 2 Weather Data

Weather Station	Rain (mm)	Max temp (˚C)	Min temp (˚C)	Sun (hours)	Gust (knots)	Wind (knots)
30/08/2012	0	16.4	7.4	-	-	8.3

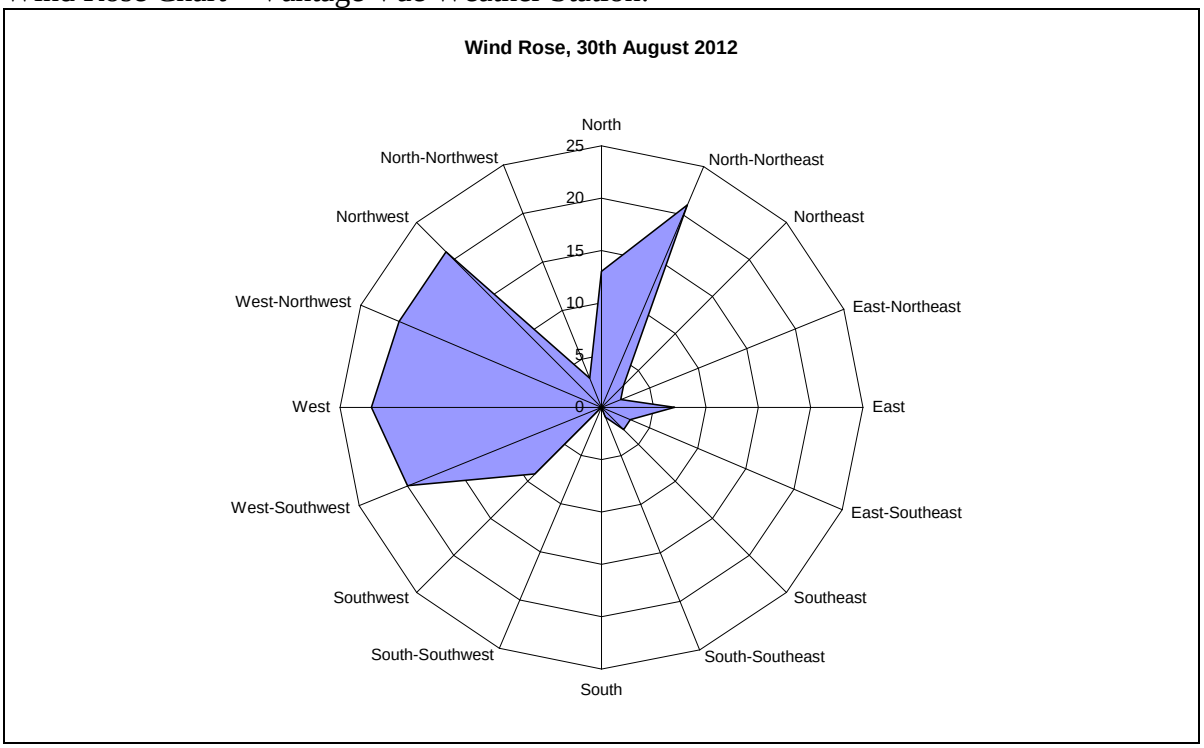
The above data refer to the period midnight to midnight They are provisional data and have not been quality controlled Rain is total precipitation plus deposition in mm. Max is the maximum temperature in Degrees Celsius Min is the minimum temperature in Degrees Celsius Sun is the total sunshine in hours Gust is the highest gust of wind in knots if 34 knots or greater Wind is the mean wind speed in knots Soil is the mean 10cm temperature in Degrees Celsius G_{min} is the minimum temperature on a grass surface in Degrees Celsius.

Table 3: Vantage Vue Weather Station Tullamore Data:

Date	30/08/2012			
Start Time	00:10:00		**Finish Time**	23:50:00
Temperature	12.97		**High Temperature**	17.00
			Low Temperature	9.90
Humidity	81.34		**Dew Point**	9.65
Wind Speed	0.58		**High Wind Speed**	5.40
Wind Direction	W		**Bar**	658.37
THW Index	12.85		**Wind Chill**	12.97
Rain	0.00		**Rain Rate**	0.00

Temperature in ºC, Wind speed in m/s, rainfall in mm

Wind Rose Chart – Vantage Vue Weather Station:



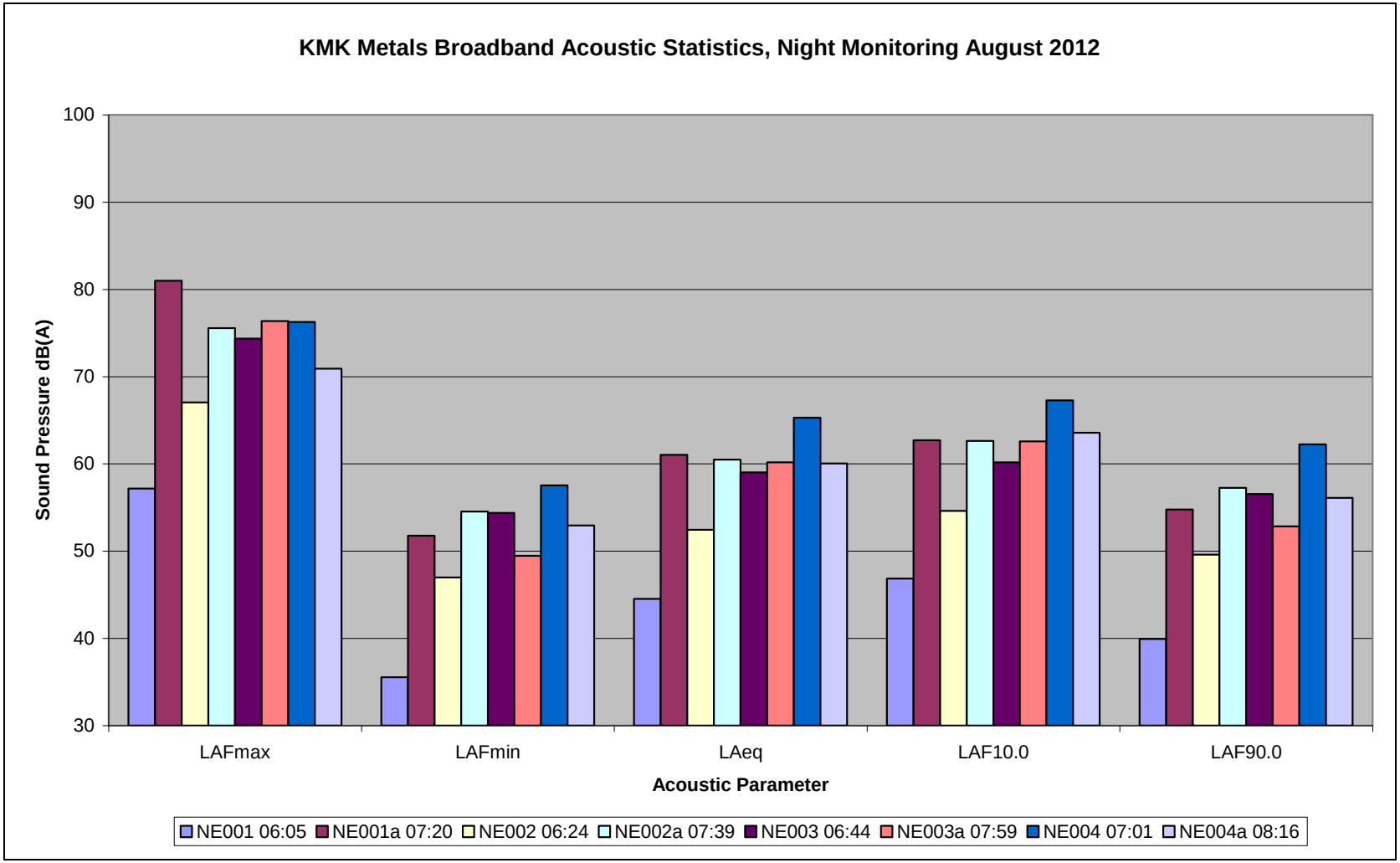
Results

Table 4: Night Monitoring Broadband Acoustic Results, KMK Metals, 30th August 2012

Project Name	NE001	NE001a	NE002	NE002a	NE003	NE003a	NE004	NE004a
Start Time	**06:05**	**07:20**	**06:24**	**07:39**	**06:44**	**07:59**	**07:01**	**08:16**
LAFmax	57	81	67	76	74	76	76	71
LAFmin	36	52	47	55	54	49	58	53
LAeq	45	61	52	60	59	60	65	60
LAF10.0	47	63	55	63	60	63	67	64
LAF90.0	40	55	50	57	57	53	62	56
LAleq-LAeq	1.34	3.69	2.38	1.95	1.53	1.87	1.52	1.28

Table 5: Day Monitoring Broadband Acoustic Results, KMK Metals, 30th August 2012

Project Name	NE001	NE001a	NE001b	NE002	NE002a	NE002b	NE003	NE003a	NE003b	NE004	NE004a	Ne004b
Start Time	**08:36**	**10:54**	**13:10**	**09:09**	**11:29**	**13:43**	**09:44**	**12:03**	**14:59**	**10:18**	**12:36**	**15:33**
LAFmax	82	77	86	89	87	86	77	75	73	80	79	70
LAFmin	45	55	43	56	55	53	52	55	40	51	56	49
LAeq	59	63	65	69	68	66	60	61	55	65	66	57
LAF10.0	62	65	69	72	71	70	63	63	56	68	68	59
LAF90.0	49	56	57	61	61	58	57	58	50	56	60	53
LAIeq-LAeq	3.92	1.73	3.51	3.50	3.38	3.24	2.07	1.93	1.90	1.87	1.54	1.30


KMK Metals Broadband Acoustic Statistics, Night Monitoring August 2012
Sound Pressure dB(A)
100
90
80
70
60
50
40
30
LAFmax
LAFmin
LAeq
LAF10.0
LAF90.0
Acoustic Parameter
NE001 06:05
NE001a 07:20
NE002 06:24
NE002a 07:39
NE003 06:44
NE003a 07:59
NE004 07:01
NE004a 08:16

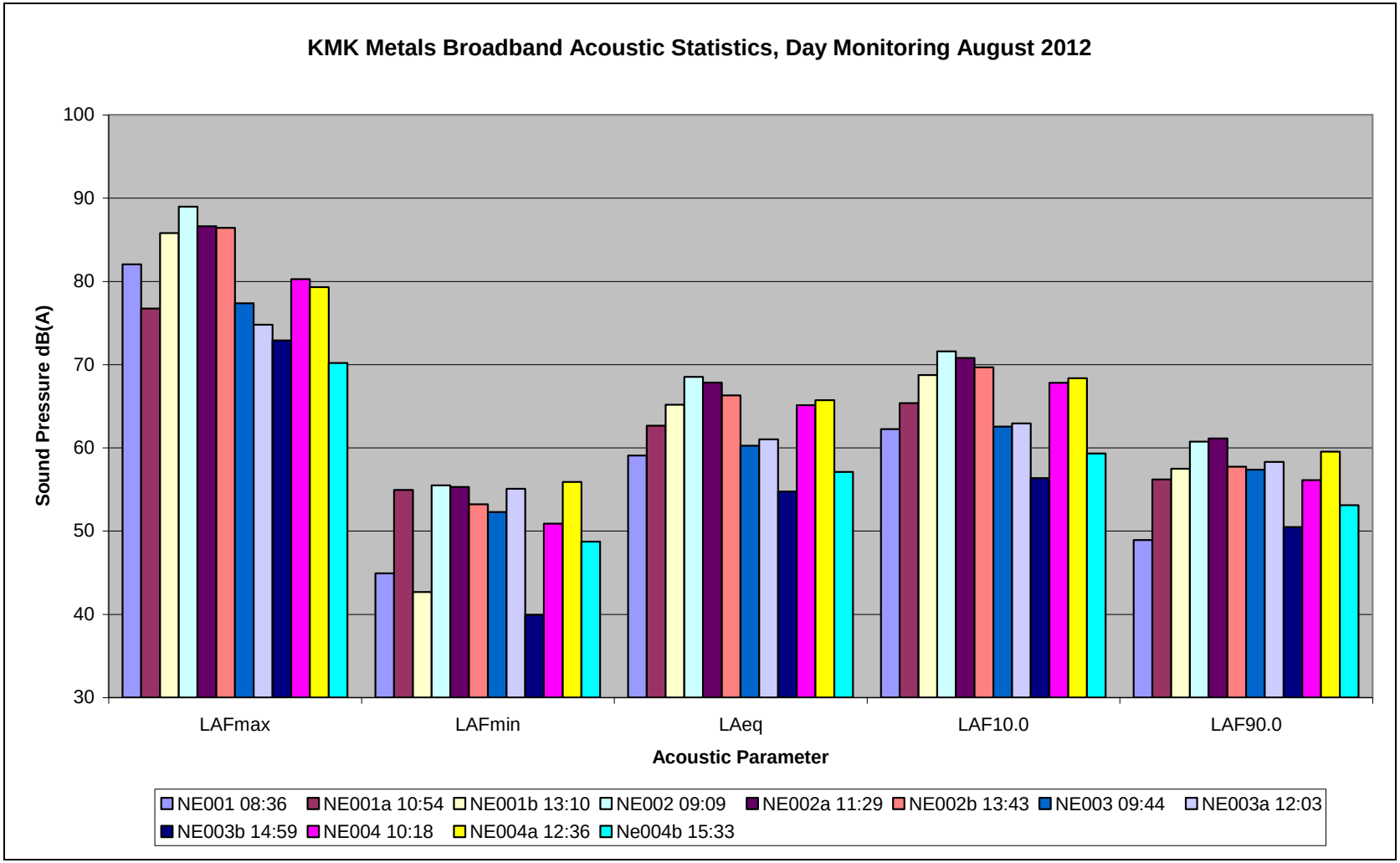

KMK Metals Broadband Acoustic Statistics, Day Monitoring August 2012
Sound Pressure dB(A)
100
90
80
70
60
50
40
30
LAFmax
LAFmin
LAeq
LAF10.0
LAF90.0
Acoustic Parameter
NE001 08:36
NE001a 10:54
NE001b 13:10
NE002 09:09
NE002a 11:29
NE002b 13:43
NE003 09:44
NE003a 12:03
NE003b 14:59
NE004 10:18
NE004a 12:36
Ne004b 15:33

Table 6: Night Monitoring 1/3 Octave Results, KMK 30th August 2012

Frequency	Project Name	NE001	NE001a	NE002	NE002a	NE003	NE003a	NE004	NE004a
	Start Time	06:05	07:20	06:24	07:39	06:44	07:59	07:01	08:16
	12.5	53	52	49	50	61	60	56	57
	16	51	51	49	51	66	64	56	56
	20	49	53	47	50	68	67	56	57
	25	48	62	51	54	68	67	69	71
	31.5	46	67	48	52	75	73	65	61
	40	49	67	48	56	66	65	59	58
	50	49	66	51	62	66	66	61	60
	63	45	61	49	54	67	65	62	58
	80	49	62	48	57	66	65	60	58
	100	41	57	60	60	61	59	62	57
	125	38	54	46	56	62	60	63	58
	160	41	55	45	56	62	60	64	57
	200	37	52	45	53	60	58	62	55
	250	41	52	45	53	53	53	59	53
	315	36	52	46	51	53	52	59	52
	400	37	52	45	53	50	51	57	50
	500	37	51	44	53	50	52	58	51
	630	37	50	43	51	50	50	55	51
	800	37	50	43	50	48	50	55	52
	1k	36	52	42	51	47	50	55	52
	1.25k	35	57	43	52	48	51	55	51
	1.6k	33	48	41	50	45	48	54	49
	2k	30	46	40	48	44	47	54	48
	2.5k	26	44	39	49	44	47	53	45
	3.15k	25	43	40	46	43	45	50	41
	4k	21	40	34	43	40	43	48	38

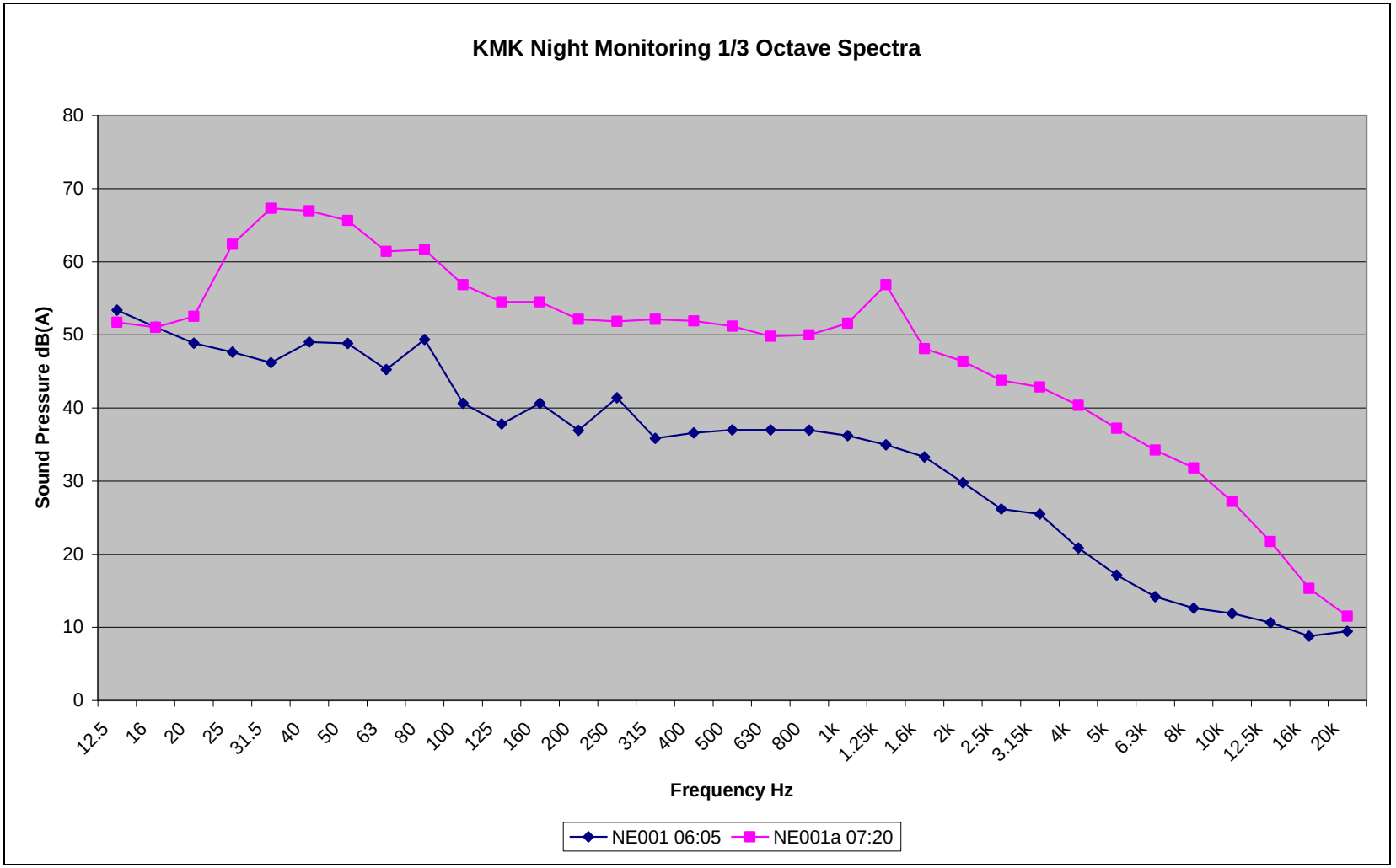
	Project Name	NE001	NE001a	NE002	NE002a	NE003	NE003a	NE004	NE004a
	Start Time	06:05	07:20	06:24	07:39	06:44	07:59	07:01	08:16
	5k	17	37	31	40	38	42	45	36
	6.3k	14	34	27	35	37	40	42	34
	8k	13	32	24	32	33	38	38	30
	10k	12	27	19	26	31	36	35	27
	12.5k	11	22	15	19	29	33	29	22
	16k	9	15	11	13	24	28	22	16
	20k	9	12	10	11	19	23	16	14

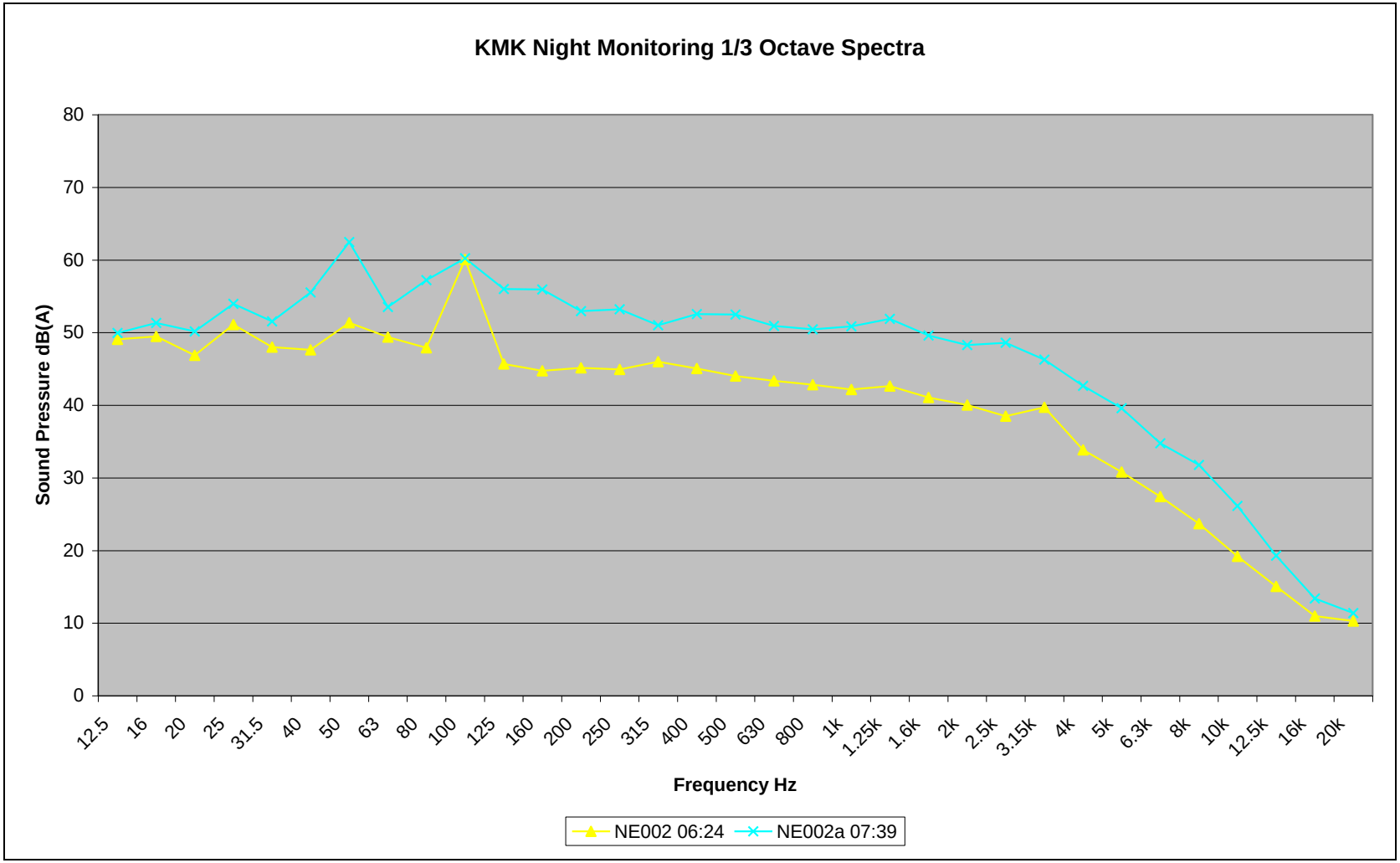
Table 7: Day Monitoring 1/3 Octave Results, KMK 30th August 2012

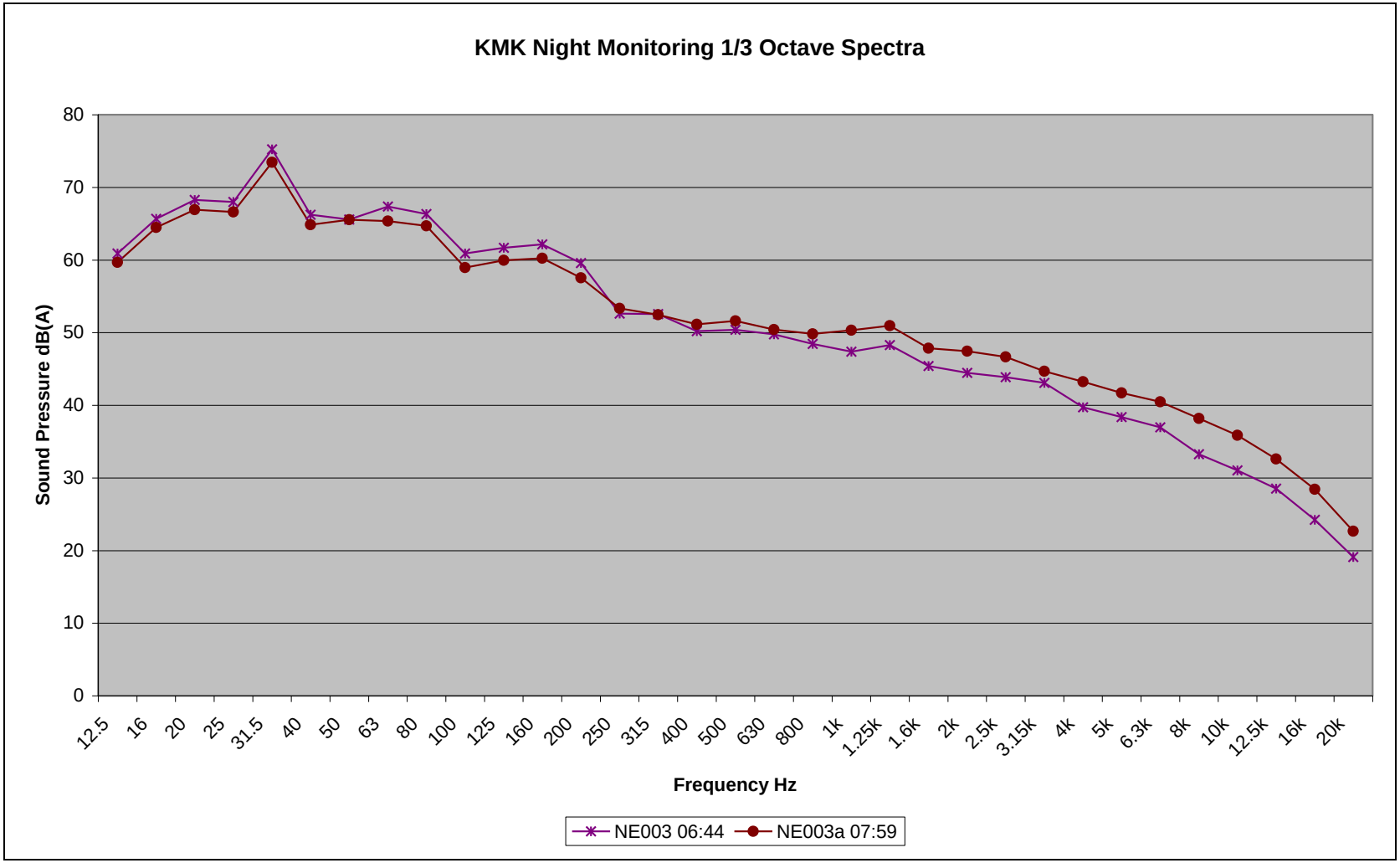
	Project Name	NE001	NE001a	NE001b	NE002	NE002a	NE002b	NE003	NE003a	NE003b	NE004	NE004a	NE004b
	Start Time	08:36	10:54	13:10	09:09	11:29	13:43	09:44	12:03	14:59	10:18	12:36	15:33
Frequency (Hz)	12.5	62	65	62	60	63	62	61	62	54	68	66	64
	16	60	63	61	59	62	61	65	65	57	66	65	63
	20	60	61	59	58	65	64	67	67	59	65	63	62
	25	70	63	61	60	65	67	68	71	67	68	73	72
	31.5	63	68	68	59	63	65	75	73	64	64	64	61
	40	63	64	65	63	64	63	66	66	58	61	61	60
	50	63	69	70	68	68	66	66	66	60	61	63	60
	63	58	73	74	63	61	61	66	66	58	61	60	57
	80	58	67	67	66	64	61	65	65	57	61	61	56
	100	56	59	59	65	62	62	60	61	55	61	62	56
	125	53	57	60	63	61	58	61	61	53	63	64	57
	160	54	57	60	64	64	61	62	62	55	64	64	55
	200	51	54	58	64	62	59	58	58	55	62	62	52
	250	51	57	60	62	61	59	53	54	48	59	61	51
	315	49	57	61	60	61	58	54	54	50	58	59	51
	400	50	53	54	60	60	58	52	53	46	58	58	48

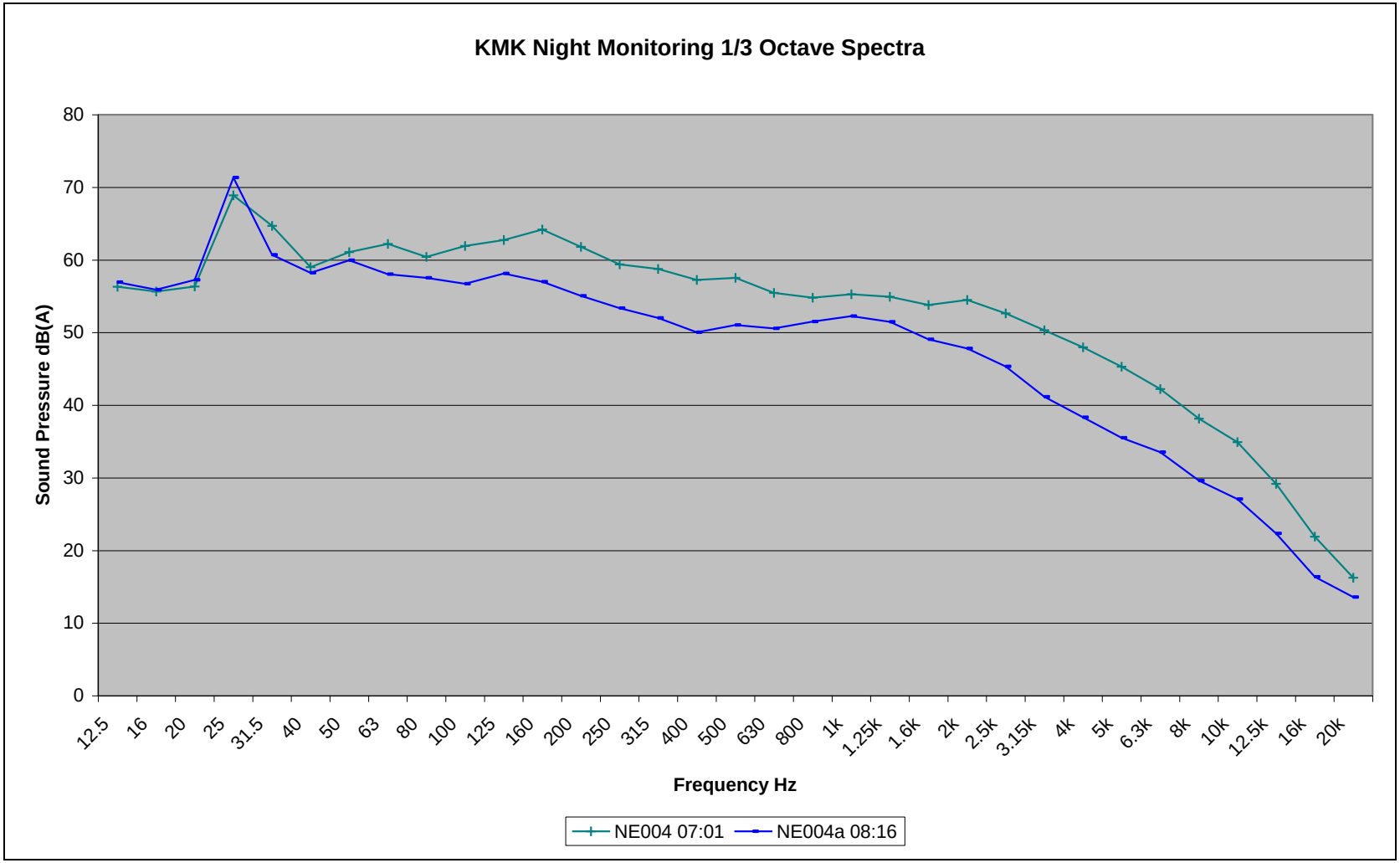
	Project Name	NE001	NE001a	NE001b	NE002	NE002a	NE002b	NE003	NE003a	NE003b	NE004	NE004a	NE004b
	Start Time	08:36	10:54	13:10	09:09	11:29	13:43	09:44	12:03	14:59	10:18	12:36	15:33
	500	50	53	54	60	60	59	52	53	47	58	58	48
	630	48	52	53	59	59	57	51	51	47	56	56	48
	800	48	50	53	58	58	57	50	50	44	55	56	50
	1k	50	49	52	59	58	57	49	50	44	55	55	50
	1.25k	54	50	56	58	58	56	49	51	44	55	55	47
	1.6k	46	51	53	57	56	55	48	49	42	54	54	45
	2k	45	48	53	56	55	54	48	49	41	54	55	43
	2.5k	43	50	52	56	55	55	47	48	40	52	53	40
	3.15k	42	51	52	57	55	54	45	46	39	48	49	38
	4k	40	51	52	52	51	49	43	45	36	45	47	35
	5k	40	48	52	49	48	45	42	43	35	41	43	32
	6.3k	33	48	51	47	46	43	41	42	32	37	40	30
	8k	32	51	49	45	44	40	38	39	31	33	36	28
	10k	33	48	47	40	40	36	35	36	28	29	33	27
	12.5k	25	45	43	38	37	33	32	33	27	24	28	24
	16k	25	40	46	36	35	30	30	30	27	21	24	21
	20k	16	37	44	35	33	26	27	28	23	20	21	20

1/3 Octave Night Time Monitoring Charts.

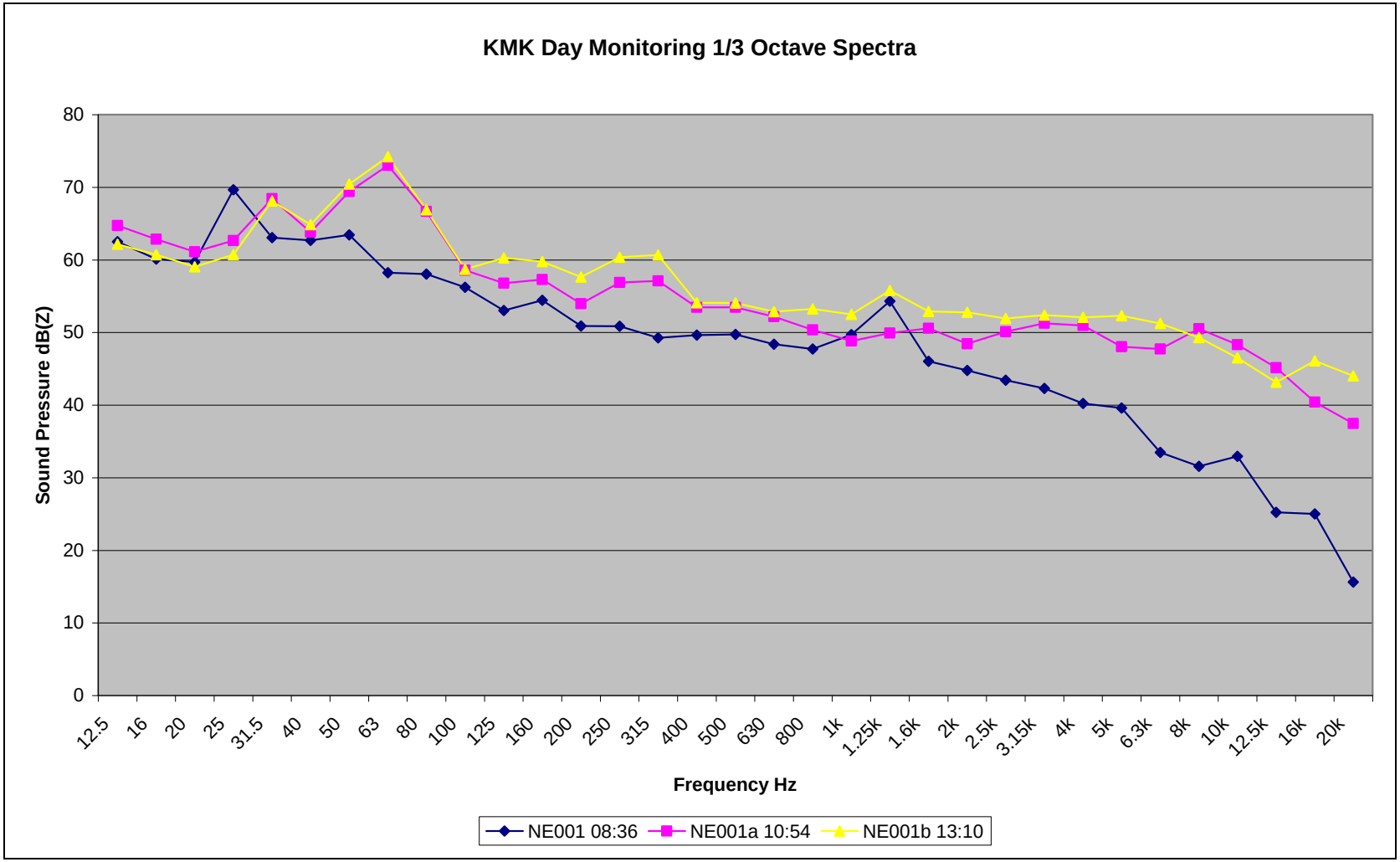


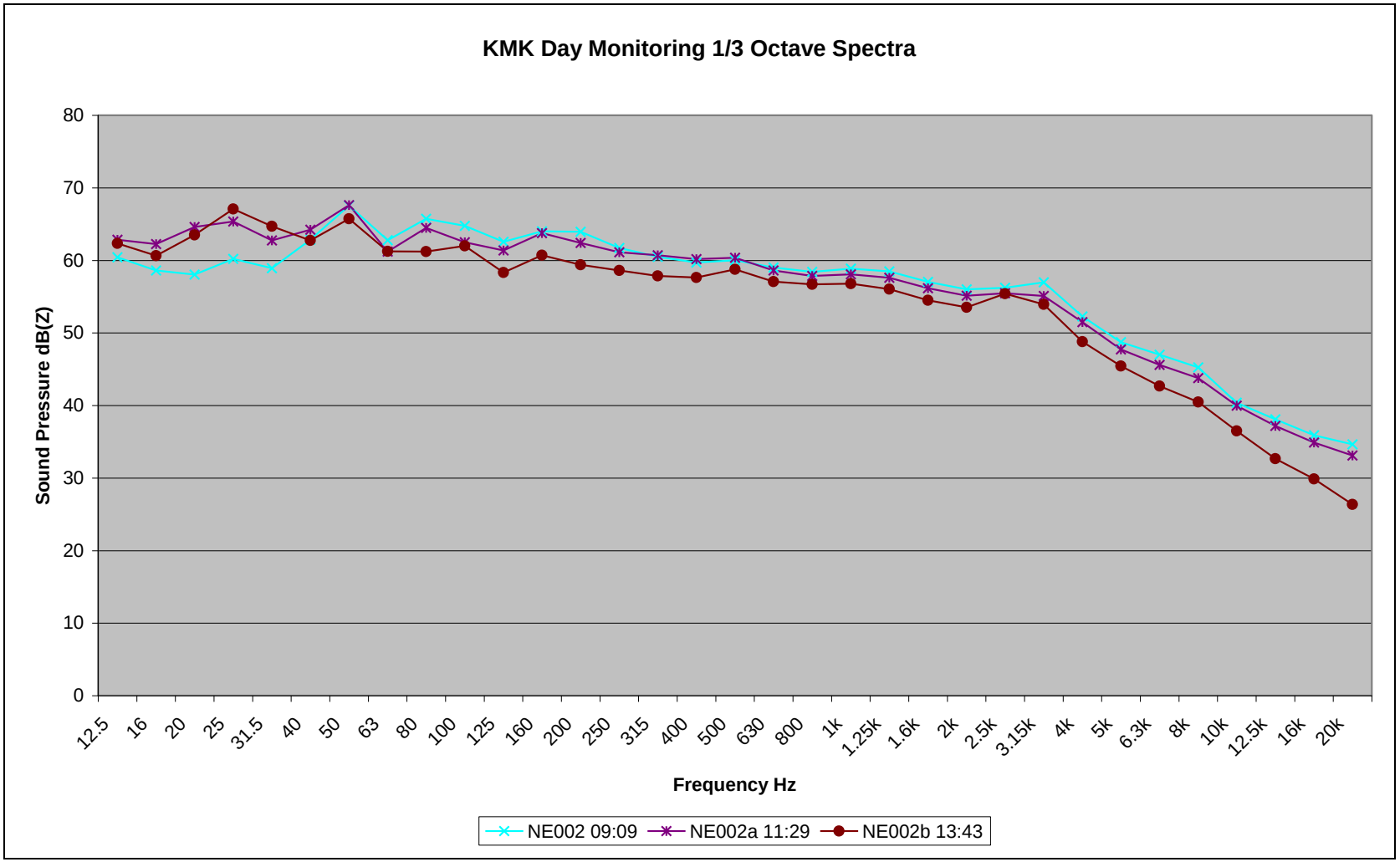

KMK Night Monitoring 1/3 Octave Spectra
Sound Pressure dB(A)
0
10
20
30
40
50
60
70
80
12.5
16
20
25
31.5
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1k
1.25k
1.6k
2k
2.5k
3.15k
4k
5k
6.3k
8k
10k
12.5k
16k
20k
Frequency Hz
NE002 06:24
NE002a 07:39

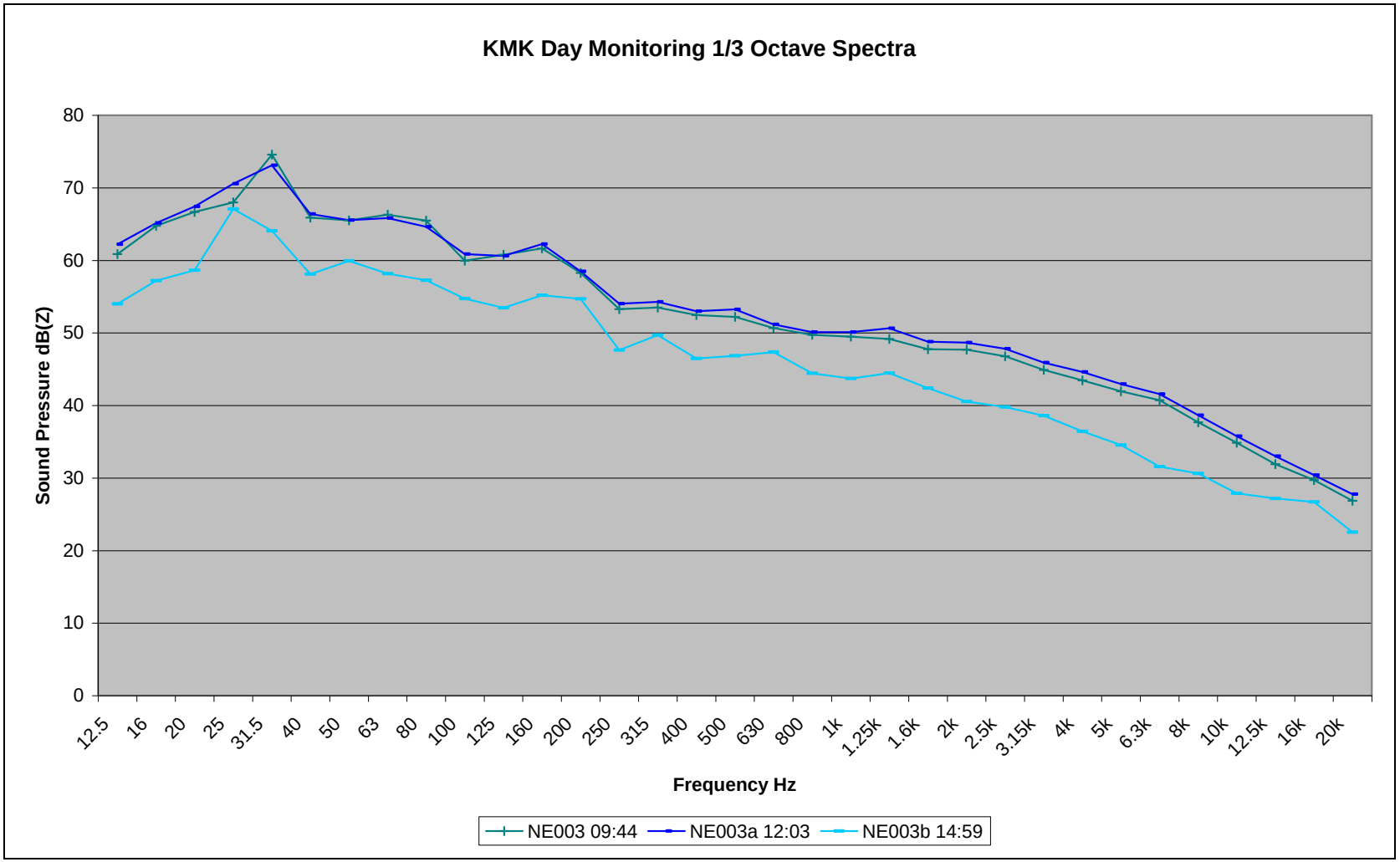

KMK Night Monitoring 1/3 Octave Spectra
Sound Pressure dB(A)
80
70
60
50
40
30
20
10
0
12.5
16
20
25
31.5
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1k
1.25k
1.6k
2k
2.5k
3.15k
4k
5k
6.3k
8k
10k
12.5k
16k
20k
Frequency Hz
NE003 06:44
NE003a 07:59

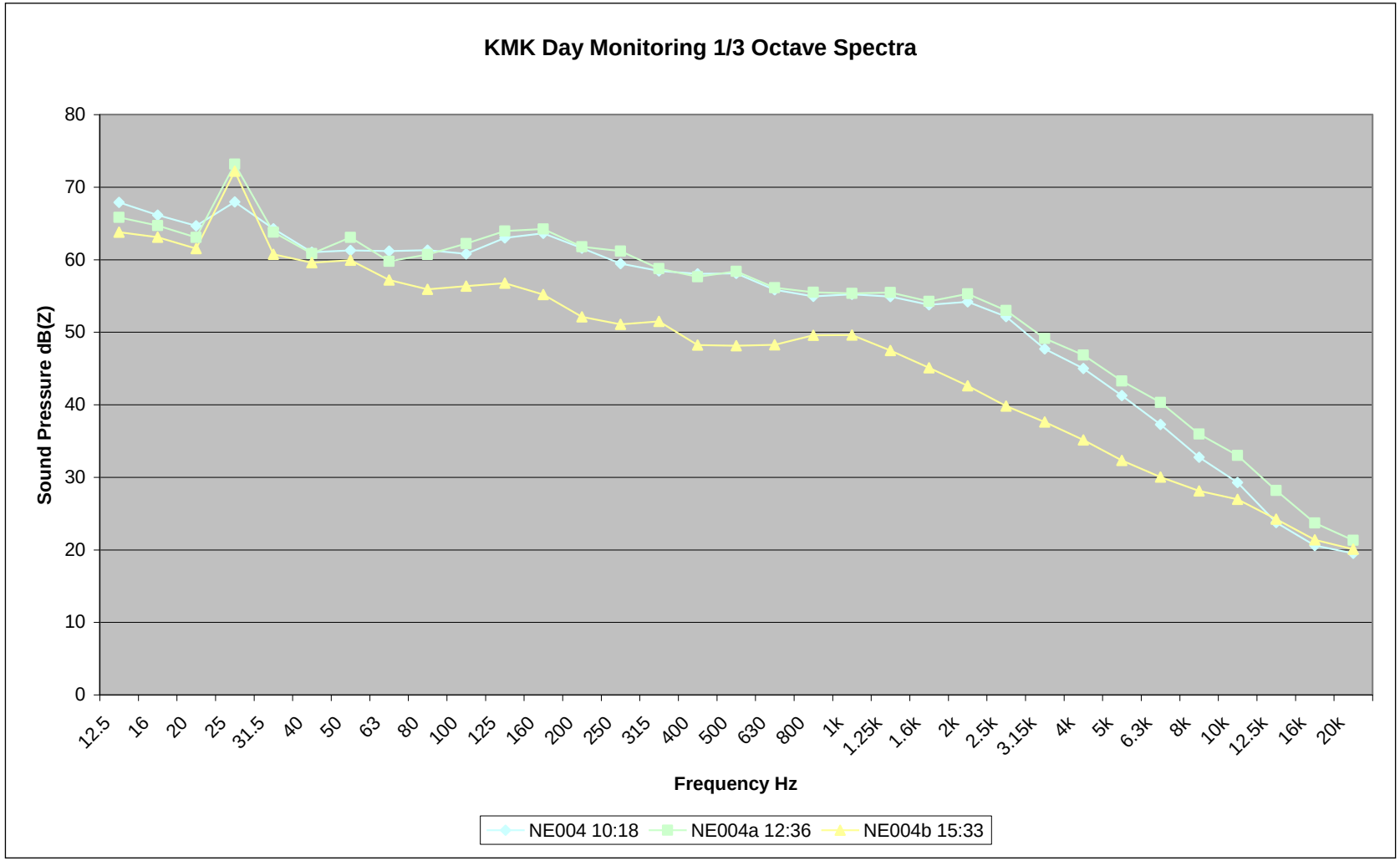

KMK Night Monitoring 1/3 Octave Spectra
Sound Pressure dB(A)
0
10
20
30
40
50
60
70
80
12.5
16
20
25
31.5
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1k
1.25k
1.6k
2k
2.5k
3.15k
4k
5k
6.3k
8k
10k
12.5k
16k
20k
Frequency Hz
NE004 07:01
NE004a 08:16

1/3 Octave Charts – Daytime Monitoring Events.




KMK Day Monitoring 1/3 Octave Spectra
Sound Pressure dB(Z)
80
70
60
50
40
30
20
10
0
12.5
16
20
25
31.5
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1k
1.25k
1.6k
2k
2.5k
3.15k
4k
5k
6.3k
8k
10k
12.5k
16k
20k
Frequency Hz
NE002 09:09
NE002a 11:29
NE002b 13:43


KMK Day Monitoring 1/3 Octave Spectra
Sound Pressure dB(Z)
80
70
60
50
40
30
20
10
0
12.5
16
20
25
31.5
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1k
1.25k
1.6k
2k
2.5k
3.15k
4k
5k
6.3k
8k
10k
12.5k
16k
20k
Frequency Hz
NE003 09:44
NE003a 12:03
NE003b 14:59


KMK Day Monitoring 1/3 Octave Spectra
Sound Pressure dB(Z)
80
70
60
50
40
30
20
10
0
12.5
16
20
25
31.5
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1k
1.25k
1.6k
2k
2.5k
3.15k
4k
5k
6.3k
8k
10k
12.5k
16k
20k
Frequency Hz
NE004 10:18
NE004a 12:36
NE004b 15:33

Appendix B

Bruel Kjaer Calibration Certificates

2250 Light SLM
Calibrator (on-site)

CERTIFICATE OF CALIBRATION

Issued By BSRIA Instrument Solutions
Date of Issue 01 February 2011

Certificate Number
STD34854

Hire Calibration Sales BSRIA Instrument Solutions

BSRIA Instrument Solutions
Old Bracknell Lane West, Bracknell, Berkshire RG12 7AH UK
Tel: +44 (0) 1344 459314 Fax: +44 (0) 1344 465556
e mail: info@bis.fm website: www.bis.fm

BSRIA Quality Approved
T.J. Trotter

Approved Signatory

Customer : Butler Technologies
Maynooth, Co. Kildare

Date Received : 27 January 2011

Instrument -

System ID :	66642
Description :	Sound Meter with Freq Analysis
Manufacturer :	Bruel and Kjaer
Model Number :	2250
Serial Number :	2567741
Procedure Version :	NO294V4

Environmental Conditions

Temperature : 20°C +/- 4°C
Relative Humidity : <70% +/- %
Mains Voltage : 240V +/- 10V
Mains Frequency : 50Hz +/- 1Hz

Comments

Calibration tolerances quoted are those as stated in BS EN 61672-1:2003
Unless otherwise stated all readings are made at 1kHz.
Calibration performed acoustically.
Preamp Serial Number 11164
Barometric Pressure= 1017 mbar. Ambient Temperature = 19.1°C

Traceability Information

Instrument description	*Serial number*	*Certificate number*	*Cal. Date*	*Cal. Period*
Bruel & Kjaer 4226 Acoustic Calibrator	2546174	C1007252	24/08/2010	104

Calibrated By : T. Wicks **Date of Calibration :** 01 February 2011

CERTIFICATE OF CALIBRATION

Certificate Number
STD34854

Test Title	Tolerance	Applied Value	Reading	% Of Spec.
PRE CALIBRATION CHECK				
Battery Check	---	---	Pass	
Acoustic Pre Calibration Check at 1kHz.				
As Found	1.1dB	94.0dB	94.6dB	55%
As left	1.1dB	94.0dB	93.9dB	9%
CALIBRATION RESULTS				
Broadband A Weighting Filter Mode, 1kHz, Fast Response.				
Range, 20 to 140dB	1.1dB	94.0dB	93.9dB	9%
	1.1dB	104.0dB	103.9dB	9%
	1.1dB	114.0dB	114.0dB	0%
A level of 94dB, at the frequency shown, was applied to the instrument and its dB(A) weighted response recorded. Spectrum Mode.				
94dB @ 125Hz	1.5dB	77.9dB	77.7dB	13%
94dB @ 1kHz	1.1dB	94.0dB	93.9dB	9%
94dB @ 4kHz	1.6dB	95.0dB	95.2dB	12%
A level of 94dB, at the frequency shown, was applied to the instrument and its dB(C) weighted response recorded. Spectrum Mode.				
94dB @ 125Hz	1.5dB	93.8dB	93.9dB	7%
94dB @ 1kHz	1.1dB	94.0dB	93.9dB	9%
94dB @ 4kHz	1.6dB	93.2dB	93.3dB	6%
A level of 94dB, at the frequency shown, was applied to the instrument and its dB(Z) weighted response recorded. Spectrum Mode.				
94dB @ 125Hz	1.5dB	94.0dB	93.8dB	13%
94dB @ 1kHz	1.1dB	94.0dB	93.9dB	9%
94dB @ 4kHz	1.6dB	94.0dB	94.2dB	12%

Uncertainties

Sound Level	±0.5 dB An extra uncertainty of 1 least significant digit shall be added to all values.

CERTIFICATE OF CALIBRATION

Certificate Number
STD34854

Test Title	Tolerance	Applied Value	Reading	% Of Spec.
CALIBRATION RESULTS (Cont'd)				
Frequency Analyzer Mode, Fast Response, 20 to 140dB Range.				
94dB @ 63Hz	1.5dB	94.0dB	93.9dB	7%
94dB @ 125Hz	1.5dB	94.0dB	94.0dB	0%
94dB @ 250Hz	1.4dB	94.0dB	94.2dB	14%
94dB @ 500Hz	1.4dB	94.0dB	94.1dB	7%
94dB @ 1kHz	1.1dB	94.0dB	93.9dB	9%
94dB @ 2kHz	1.6dB	94.0dB	94.0dB	0%
94dB @ 4kHz	1.6dB	94.0dB	94.5dB	31%
94dB @ 8kHz	2.1dB	94.0dB	95.0dB	48%

---- End of Data ----

WTI

Uncertainties

Sound Level	±0.5 dB An extra uncertainty of 1 least significant digit shall be added to all values.

NSAI
National Metrology Laboratory

Certificate of Calibration

Issued to	Enviroco Management Ltd, Bow House, O'Moore St Tullamore, County Offaly.
Attention of	Mr Kenneth Goodwin

Certificate Number	E12316
Item Calibrated	Bruel & Kjaer Type 4231 Sound Calibrator
Serial Number	2615164
Client ID Number	-
Order Number	KDG20100723
Date Received	24 Jul 2012
NML Procedure Number	AP-NM-13 (2010)
Method	The above calibrator was allowed to stabilize for a suitable period in laboratory conditions. It was then calibrated by measuring the sound pressure level generated in its measuring cavity (half-inch configuration). The calibrator's operating frequency was also measured.
Calibration Standards	Norsonic 1504A Calibration System incorporating: Agilent 34401A Digital Multimeter, File No. 0736 [Cal due: 11 Jul 2013] B & K 4134 Measuring Microphone, File No. 0743 [Cal due: 17 Apr 2014] B & K 4228 Pistonphone, File No. 0741 [Cal due: 07 Mar 2013]

Calibrated by	Oliver Power	**Approved by**	Paul Hetherington
Date of Calibration	07 Aug 2012	**Date of Issue**	07 Aug 2012

CIPM MRA

This certificate is consistent with Calibration and Measurement Capabilities (CMC's) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures. Under the MRA, all participating institutes recognize the validity of each other's calibration certificates and measurement reports for quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org)

Glas Naíon | Baile Átha Cliath 11 | Éire

Page 1 of 3

NSAI
National Metrology Laboratory

Certificate No.: E12316

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NSAI
National Metrology Laboratory

Certificate No.: E12316

Measuring Conditions:

Ambient Pressure:	101.3 ± 0.5 kPa
Ambient Temperature:	21.2 ± 1.0°C
Ambient Rel. Humidity:	51 ± 5%RH
Equivalent volume of the measuring microphone:	250 mm³

Results:

The measured sound pressure level(s) reported below refer to the reference conditions specified by the manufacturer. Corrections were applied using sensitivity coefficients provided by the manufacturer, where available. These reference conditions and sensitivity coefficients are listed below.

Parameter	Reference Value	Sensitivity Coefficient
Ambient Pressure	101.325 kPa	+0.000 8 dB/kPa
Ambient Temperature	20°C	0.000 dB/°C
Ambient relative humidity	65%RH	0.000 dB/%RH
Microphone equivalent volume	250 mm³	+0.000 3 dB/mm³

Calibrator Setting	Measured Parameter	Measured Value (iii),(iii),(iv)		Tol. (v)	Meas. Uncertainty(vi)
		Before Adj.	After Adj,	(±)	(±)
94 dB	Sound Pressure Level	94.00 dB	*	0.4 dB	0.14 dB
	Frequency	1000.0 Hz	*	20 Hz	0.25 Hz
114 dB	Sound Pressure Level	113.99 dB	*	0.4 dB	0.14 dB
	Frequency	1000.0 Hz	*	20 Hz	0.25 Hz

Notes:
(i) No sensitivity coefficient information available for this parameter.
(ii) All measurements were made with the ½ inch adaptor fitted to the calibrator.
(iii) The measured levels refer to the reference conditions given above.
(iv) $ indicates an out-of-specification condition.
* indicates that no calibration adjustment was made.
(v) IEC 60942 (2003) Sound calibrators, Class 1
(vi) The measurement uncertainty is reported as a standard uncertainty multiplied by a coverage factor k=2 which, for a normal probability distribution corresponds to a coverage probability of approximately 95%. The given uncertainty refers to the measured values only and carries no implication regarding the long-term stability of the item calibrated.

Comments:
The above sound level calibrator was found to comply with the requirements of IEC 60942 (2003), Sound Calibrators, Class 1. Note that the measured values refer to reference conditions and, if used under non-reference conditions, the user should apply the appropriate corrections. In particular, the fit and loading of the microphone should be taken into account. Any manufacturer's guidelines regarding free-field corrections should also be observed.

Traceability:
The reported measurement results are traceable, via national standards maintained by NSAI National Metrology Laboratory (NML), to internationally accepted realisations of the SI units.

Page 3 of 3

APPENDIX 7

Laboratory Water Results Reports for 2012

TEST REPORT

Analysing
Testing
Consulting
Calibrating

BHP

BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpcem2@bhp.ie

Client: Enviroco Management Ltd
Bow House
O'Moore St
Tullamore
Co.Offaly

FTAO: Pamela Maleady

BHP Ref. No.: 102429
Order No:
Date Received: 10/02/12
Date Completed: 17/02/12
Test Specification: Nil
Item :See below

TEST	Client Reference	Units	Results	Method
	CX 71289			
pH		-	7.31	APHA - 4500 - H^+ - B
COD		mg/l	23	APHA - 5220 - D
Ammonia		mg/l	0.57	APHA-4500-NH_3-D
Conductivity		μScm^{-1}	162	APHA - 2510 - B
Total Suspended Solids		mg/l	4	APHA - 2540 -D
Mineral Oils		mg/l	<0.01	GC-FID
Chloride		mg/l	17.9	APHA - 4110 - B
Aluminium		ug/l	129	APHA - 3120 - B
Arsenic		ug/l	<1	APHA - 3120 - B
Chromium		ug/l	<1	APHA - 3120 - B
Iron		ug/l	<1	APHA - 3120 - B
Mercury		ug/l	<0.2	APHA - 3120 - B
Nickel		ug/l	<1	APHA - 3120 - B
Lead		ug/l	<1	APHA - 3120 - B
Zinc		ug/l	2	APHA - 3120 - B

Additional Information: All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

Authorised by:

Pat O' Sullivan
Chemical and Environmental Monitoring Laboratory
Environmental Site Manager

Date of Issue: 17th February 2012

TEST REPORT

Analysing
Testing
Consulting
Calibrating

BHP
New Road
Thomondgate
Limerick
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Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpcem2@bhp.ie

Client: **Enviroco Management Ltd**
Bow House
O'Moore St
Tullamore
Co.Offaly

FTAO: Kenneth Goodwin

BHP Ref. No.: 104472.1
Order No.:
Date Received: 14/06/12
Date Completed: 28/06/12
Test Specification: Nil
Item :See below

Test	Client Reference	Units	Results	Standard Reference
pH	KM10 71365 CX	-	7.34	APHA-4500-H^+-B
Electrical Conductivity @20°C		μScm^{-1}	1586	APHA - 2510 - B
Ammonia (as NH_3-N)		mg/l	5.57	APHA -4500- NH_3-D
COD		mg/l	12	APHA - 5220 - D
Total Suspended Solids		mg/l	10	APHA - 2540 -D
Aluminium (diss.filt)		ug/l	24	APHA - 3120 - B
Arsenic (diss.filt)		ug/l	<1	APHA - 3120 - B
Chromium (diss.filt)		ug/l	<1	APHA - 3120 - B
Lead (diss.filt)		ug/l	<1	APHA - 3120 - B
Nickel (diss.filt)		ug/l	<1	APHA - 3120 - B
Zinc (diss.filt)		ug/l	19	APHA - 3120 - B
Mercury (diss.filt)		ug/l	<0.2	APHA - 3120 - B
Iron (diss.filt)		ug/l	<1	APHA - 3120 - B
Chloride		mg/l	322.9	APHA - 4110 - B
Mineral Oil		mg/l	<0.01	GC-FID

Additional information : All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

Pat O'Sullivan
Issue Date : 28/06/2012

TEST REPORT

Analysing
Testing
Consulting
Calibrating

BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpcem2@bhp.ie

Client: **Enviroco Management Ltd**
Bow House
O'Moore St
Tullamore
Co.Offaly

FTAO: Kenneth Goodwin

BHP Ref. No.: 104472.2
Order No.:
Date Received: 14/06/12
Date Completed: 28/06/12
Test Specification: Nil
Item :See below

Test	Client Reference	Units	Results	Standard Reference
pH	**KM10 71365 DX**	-	7.36	APHA-4500-H^+-B
Electrical Conductivity @20°C		μScm^{-1}	608	APHA - 2510 - B
Ammonia (as NH_3-N)		mg/l	3.25	APHA -4500- NH_3-D
COD		mg/l	36	APHA - 5220 - D
Total Suspended Solids		mg/l	65	APHA - 2540 -D
Aluminium (diss.filt)		ug/l	86	APHA - 3120 - B
Arsenic (diss.filt)		ug/l	<1	APHA - 3120 - B
Chromium (diss.filt)		ug/l	<1	APHA - 3120 - B
Lead (diss.filt)		ug/l	<1	APHA - 3120 - B
Nickel (diss.filt)		ug/l	<1	APHA - 3120 - B
Zinc (diss.filt)		ug/l	204	APHA - 3120 - B
Mercury (diss.filt)		ug/l	<0.2	APHA - 3120 - B
Iron (diss.filt)		ug/l	18	APHA - 3120 - B
Chloride		mg/l	79.7	APHA - 4110 - B
Mineral Oil		mg/l	<0.01	GC-FID

Additional information : All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

Pat O'Sullivan
Issue Date : 28/06/2012

TEST REPORT

Analysing
Testing
Consulting
Calibrating

Client: Enviroco Management Ltd
Bow House
O'Moore St
Tullamore
Co.Offaly

FTAO: Kenneth Goodwin

BHP Ref. No.: 106086.2
Order No.:
Date Received: 25/09/12
Date Completed: 02/10/12
Test Specification: Nil
Item :See below

BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpcem2@bhp.ie

Test	Client Reference	Units	Results	Standard Reference
pH	KM10 71423 CX	-	7.59	APHA-4500-H^+-B
Electrical Conductivity @20°C		μScm^{-1}	373	APHA - 2510 - B
Ammonia (as NH_3-N)		mg/l	5.90	APHA -4500- NH_3-D
COD		mg/l	<1	APHA - 5220 - D
Total Suspended Solids		mg/l	17	APHA - 2540 -D
Aluminium (diss.filt)		ug/l	128	APHA - 3120 - B
Arsenic (diss.filt)		ug/l	<1	APHA - 3120 - B
Chromium (diss.filt)		ug/l	51	APHA - 3120 - B
Lead (diss.filt)		ug/l	<1	APHA - 3120 - B
Nickel (diss.filt)		ug/l	<1	APHA - 3120 - B
Zinc (diss.filt)		ug/l	38	APHA - 3120 - B
Mercury (diss.filt)		ug/l	<0.2	APHA - 3120 - B
Iron (diss.filt)		ug/l	28	APHA - 3120 - B
Chloride		mg/l	72.7	APHA - 4110 - B
Mineral Oil		mg/l	<0.01	GC-FID

Additional information : All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

P. O Sullivan
Pat O'Sullivan
Issue Date : 02/10/2012

TEST REPORT

Analysing
Testing
Consulting
Calibrating

BHP

BHP
New Road
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Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpcem2@bhp.ie

Client: Enviroco Management Ltd
Bow House
O'Moore St
Tullamore
Co.Offaly

FTAO: Kenneth Goodwin

BHP Ref. No.: 106086.1
Order No.:
Date Received: 25/09/12
Date Completed: 02/10/12
Test Specification: Nil
Item :See below

Test	Client Reference	Units	Results	Standard Reference
pH	KM10 71423 DX	-	7.92	APHA-4500-H^+-B
Electrical Conductivity @20°C		μScm^{-1}	405	APHA - 2510 - B
Ammonia (as NH_3-N)		mg/l	2.19	APHA -4500- NH_3-D
COD		mg/l	105	APHA - 5220 - D
Total Suspended Solids		mg/l	121	APHA - 2540 -D
Aluminium (diss.filt)		ug/l	156	APHA - 3120 - B
Arsenic (diss.filt)		ug/l	<1	APHA - 3120 - B
Chromium (diss.filt)		ug/l	39	APHA - 3120 - B
Lead (diss.filt)		ug/l	<1	APHA - 3120 - B
Nickel (diss.filt)		ug/l	<1	APHA - 3120 - B
Zinc (diss.filt)		ug/l	32	APHA - 3120 - B
Mercury (diss.filt)		ug/l	<0.2	APHA - 3120 - B
Iron (diss.filt)		ug/l	56	APHA - 3120 - B
Chloride		mg/l	85.9	APHA - 4110 - B
Mineral Oil		mg/l	<0.01	GC-FID

Additional information : All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

P. O'S

Pat O'Sullivan
Issue Date : 02/10/2012

ALcontrol Laboratories

Unit 18A
Rosemount Business Park
Ballycoolin
Dublin 11
Tel : (0035) 3188 29893

Nally Environmental
Drumcree
Collinstown
Mullinger
Co. Westmeath

Attention: Niall Nally

CERTIFICATE OF ANALYSIS

Date:	09 January 2013
Customer:	D_NALLYENV_MUL
Sample Delivery Group (SDG):	121220-59
Your Reference:	
Location:	KMK
Report No:	208011

We received 2 samples on Wednesday December 19, 2012 and 2 of these samples were scheduled for analysis which was completed on Wednesday January 09, 2013. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

Sonia McWhan

Operations Manager

1291

ALcontrol Laboratories

Validated

CERTIFICATE OF ANALYSIS

SDG:	121220-59	**Location:**	KMK	**Order Number:**	
Job:	D_NALLYENV_MUL-1	**Customer:**	Nally Environmental	**Report Number:**	208011
Client Reference:		**Attention:**	Niall Nally	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
6697598	CX			19/12/2012
6697600	DX			19/12/2012

Only received samples which have had analysis scheduled will be shown on the following pages.

ALcontrol Laboratories

Validated

CERTIFICATE OF ANALYSIS

SDG:	121220-59	**Location:**	KMK	**Order Number:**	
Job:	D_NALLYENV_MUL-1	**Customer:**	Nally Environmental	**Report Number:**	208011
Client Reference:		**Attention:**	Niall Nally	**Superseded Report:**	

LIQUID

Results Legend

[X] **Test**

■ **No Determination Possible**

			Lab Sample No(s)	6697598	6697600
			Customer Sample Reference	CX	DX
			AGS Reference		
			Depth (m)		
			Container	1l green glass bottle	1lplastic (ALE221) / 1l green glass bottle / 1lplastic (ALE221)
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 2		X	X
Anions by Kone (w)	All	NDPs: 0 Tests: 2		X	X
COD Unfiltered	All	NDPs: 0 Tests: 2		X	X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 2		X	X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 2		X	X
Mercury Dissolved	All	NDPs: 0 Tests: 2		X	X
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 2		X	X
Mineral Oil C10-40 Aqueous (W)	All	NDPs: 0 Tests: 2		X	X
pH Value	All	NDPs: 0 Tests: 2		X	X
Suspended Solids	All	NDPs: 0 Tests: 2		X	X

ALcontrol Laboratories

Validated

CERTIFICATE OF ANALYSIS

SDG:	121220-59	**Location:**	KMK	**Order Number:**	
Job:	D_NALLYENV_MUL-1	**Customer:**	Nally Environmental	**Report Number:**	208011
Client Reference:		**Attention:**	Niall Nally	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4&+&@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	CX	DX				
			Depth (m)	.	.				
			Sample Type	Water(GW/SW)	Water(GW/SW)				
			Date Sampled	19/12/2012	19/12/2012				
			Sample Time	.	.				
			Date Received	19/12/2012	19/12/2012				
			SDG Ref	121220-59	121220-59				
			Lab Sample No.(s)	6697598	6697600				
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022		8.5 #	254 #				
Ammoniacal Nitrogen as NH3	<0.2 mg/l	TM099		14.2 #	<0.2 #				
COD, unfiltered	<7 mg/l	TM107		45.5 #	243 #				
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.558 #	1.4 #				
Aluminium (diss.filt)	<2.9 µg/l	TM152		6.6 #	26.1 #				
Arsenic (diss.filt)	<0.12 µg/l	TM152		0.549 #	1.77 #				
Chromium (diss.filt)	<0.22 µg/l	TM152		1.44 #	2.08 #				
Lead (diss.filt)	<0.02 µg/l	TM152		5.31 #	8.8 #				
Nickel (diss.filt)	<0.15 µg/l	TM152		10.7 #	20.1 #				
Zinc (diss.filt)	<0.41 µg/l	TM152		174 #	90.5 #				
Mineral oil >C10 C40 (aq)	<10 µg/l	TM172		2080	4130 ♦				
Mercury (diss.filt)	<0.01 µg/l	TM183		0.0351 #	<0.01 #				
Chloride	<2 mg/l	TM184		117 #	361 #				
Iron (diss.filt)	<0.019 mg/l	TM228		0.0211 #	0.321 #				
pH	<1 pH Units	TM256		7.83 #	7.88 ♦#				

ALcontrol Laboratories

Validated

CERTIFICATE OF ANALYSIS

SDG:	121220-59	**Location:**	KMK	**Order Number:**	
Job:	D_NALLYENV_MUL-1	**Customer:**	Nally Environmental	**Report Number:**	208011
Client Reference:		**Attention:**	Niall Nally	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Laboratories

Validated

CERTIFICATE OF ANALYSIS

SDG:	121220-59	**Location:**	KMK	**Order Number:**	
Job:	D_NALLYENV_MUL-1	**Customer:**	Nally Environmental	**Report Number:**	208011
Client Reference:		**Attention:**	Niall Nally	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	6697598	6697600
Customer Sample Ref.	CX	DX
AGS Ref.		
Depth		
Type	LIQUID	LIQUID
Ammoniacal Nitrogen	07-Jan-2013	09-Jan-2013
Anions by Kone (w)	07-Jan-2013	09-Jan-2013
COD Unfiltered	02-Jan-2013	02-Jan-2013
Conductivity (at 20 deg.C)	02-Jan-2013	02-Jan-2013
Dissolved Metals by ICP-MS	07-Jan-2013	09-Jan-2013
Mercury Dissolved	03-Jan-2013	04-Jan-2013
Metals by iCap-OES Dissolved (W)	03-Jan-2013	04-Jan-2013
Mineral Oil C10-40 Aqueous (W)	07-Jan-2013	09-Jan-2013
pH Value	02-Jan-2013	04-Jan-2013
Suspended Solids	02-Jan-2013	02-Jan-2013

SDG:	121220-59	**Location:**	KMK	**Order Number:**	
Job:	D_NALLYENV_MUL-1	**Customer:**	Nally Environmental	**Report Number:**	208011
Client Reference:		**Attention:**	Niall Nally	**Superseded Report:**	

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 2 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
§	**Sampled on date not provided**
•	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than :

-

Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

APPENDIX 8

PRTR Report 2012

Environmental Protection Agency

Guidance to completing the PRTR workbook

AER Returns Workbook

Version 1.1.16

REFERENCE YEAR	2012

1. FACILITY IDENTIFICATION

Parent Company Name	KMK Metals Recycling Limited
Facility Name	KMK Metals Recycling Limited
PRTR Identification Number	W0113
Licence Number	W0113-03

Waste or IPPC Classes of Activity

No.	class_name
4.13	Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.
4.11	Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule.
4.12	Exchange of waste for submission to any activity referred to in a preceding paragraph of this Schedule.
4.3	Recycling or reclamation of metals and metal compounds.
4.4	Recycling or reclamation of other inorganic materials.
4.6	Recovery of components used for pollution abatement.
4.7	Recovery of components from catalysts.
Address 1	Cappincur Industrial Estate
Address 2	Daingean Road
Address 3	Tullamore
Address 4	Co Offaly
	Offaly
Country	Ireland
Coordinates of Location	-7.462581076 53.27421423
River Basin District	IEGBNISH
NACE Code	3832
Main Economic Activity	Recovery of sorted materials
AER Returns Contact Name	Niall Nally
AER Returns Contact Email Address	info@nallyenvironmental.ie
AER Returns Contact Position	Environmental Consultant
AER Returns Contact Telephone Number	044 96 66773
AER Returns Contact Mobile Phone Number	086 8547071
AER Returns Contact Fax Number	none
Production Volume	20000.0
Production Volume Units	tonnes
Number of Installations	1
Number of Operating Hours in Year	4848
Number of Employees	50
User Feedback/Comments	
Web Address	www.kmk.ie

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
5(a)	Installations for the recovery or disposal of hazardous waste
50.1	General

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

Is it applicable?	
Have you been granted an exemption ?	

If applicable which activity class applies (as per Schedule 2 of the regulations) ?	
Is the reduction scheme compliance route being used ?	

4. WASTE IMPORTED/ACCEPTED ONTO SITE Guidance on waste imported/accepted onto site

Do you import/accept waste onto your site for on-site treatment (either recovery or disposal activities) ?	

4.1 RELEASES TO AIR

Link to previous years emissions data

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

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

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

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

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

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
244	Total Particulates	M	EN 14385:2004	Stack Emission point	134.3	134.3	0.0	0.0

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

Additional Data Requested from Landfill operators

For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their Net methane (CH4) emission to the environment under T(total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill: KMK Metals Recycling Limited

Please enter summary data on the quantities of methane flared and / or utilised	T (Total) kg/Year	M/C/E	Method Used: Method Code	Method Used: Designation or Description	Facility Total Capacity m3 per hour	
Total estimated methane generation (as per site model)	0.0				N/A	
Methane flared	0.0				0.0	(Total Flaring Capacity)
Methane utilised in engine/s	0.0				0.0	(Total Utilising Capacity)
Net methane emission (as reported in Section A above)	0.0				N/A	

4.2 RELEASES TO WATERS

Link to previous years emissions data

| PRTR# : W0113 | Facility Name : KMK Metals Recycling Limited | Filename : W0113_2012.xls | Return Year : 2012 | 29/04/2013 16:04

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

Data on ambient monitoring of storm/surface water or groundwater, conducted as part of your licence requirements, should NOT be submitted under AER / PRTR Reporting as t

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

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

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

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

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

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

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

4.3 RELEASES TO WASTEWATER OR SEWER

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

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

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

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

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

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

4.4 RELEASES TO LAND

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

RELEASES TO LAND					Please enter all quantities in this section in KGs		
POLLUTANT		METHOD			QUANTITY		
			Method Used				
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

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

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO LAND					Please enter all quantities in this section in KGs		
POLLUTANT		METHOD			QUANTITY		
			Method Used				
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

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

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

Please enter all quantities on this sheet in Tonnes

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
To Other Countries	06 05 02	Yes	9.056	sludges from on-site effluent treatment containing dangerous solutions	R4	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland	Confidential Information,,,,,,,,,,Ireland	,,,,,,,,Ireland
To Other Countries	12 01 13	No	13.284	welding wastes	R4	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
To Other Countries	12 01 20	Yes	97.55	spent grinding bodies and grinding materials containing dangerous substances	R4	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland	Confidential Information,,,,,,,,,,Ireland	,,,,,,,,Ireland
Within the Country	13 02 08	Yes	19.548	other engine, gear and lubricating oils	R3	M	Weighed	Offsite in Ireland	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland	Confidential Information,,,,,,,,,,Ireland	,,,,,,,,Ireland
Within the Country	15 01 03	No	29.54	wooden packaging	R3	M	Weighed	Offsite in Ireland	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
Within the Country	15 01 06	No	266.96	mixed packaging	R5	M	Weighed	Offsite in Ireland	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
To Other Countries	16 01 22	No	0.634	components not otherwise specified	R4	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
To Other Countries	16 02 11	Yes	2003.78	discarded equipment containing chlorofluorocarbons, HCFC, HFC	R4	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland	Confidential Information,,,,,,,,,,Ireland	,,,,,,,,Ireland
To Other Countries	16 02 13	Yes	1499.0	discarded equipment containing hazardous components (16) other than those mentioned in 16 02 09 to 16 02 12	R4	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland	Confidential Information,,,,,,,,,,Ireland	,,,,,,,,Ireland
Within the Country	16 02 13	Yes	504.81	discarded equipment containing hazardous components (16) other than those mentioned in 16 02 09 to 16 02 12	R4	M	Weighed	Offsite in Ireland	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland	Confidential Information,,,,,,,,,,Ireland	,,,,,,,,Ireland
To Other Countries	16 02 14	No	6952.582	discarded equipment other than those mentioned in 16 02 09 to 16 02 13	R4	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
To Other Countries	16 02 15	Yes	1862.8	hazardous components removed from discarded equipment	R5	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland	Confidential Information,,,,,,,,,,Ireland	,,,,,,,,Ireland
Within the Country	16 02 15	Yes	86.194	hazardous components removed from discarded equipment	R5	M	Weighed	Offsite in Ireland	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland	Confidential Information,,,,,,,,,,Ireland	,,,,,,,,Ireland
To Other Countries	16 02 16	No	1913.727	components removed from discarded equipment other than those mentioned in 16 02 15	R4	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
Within the Country	16 02 16	No	4.305	components removed from discarded equipment other than those mentioned in 16 02 15	R4	M	Weighed	Offsite in Ireland	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
To Other Countries	16 06 01	Yes	538.55	lead batteries	R4	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland	Confidential Information,,,,,,,,,,Ireland	,,,,,,,Ireland
To Other Countries	16 06 04	No	177.879	alkaline batteries (except 16 06 03)	R4	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
Within the Country	16 06 04	No	386.488	alkaline batteries (except 16 06 03)	R4	M	Weighed	Offsite in Ireland	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
To Other Countries	19 12 02	No	360.165	ferrous metal	R4	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
To Other Countries	19 12 03	No	816.077	non-ferrous metal	R4	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
Within the Country	19 12 04	No	1098.473	plastic and rubber	R5	M	Weighed	Offsite in Ireland	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
To Other Countries	19 12 04	No	72.272	plastic and rubber	R5	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
Within the Country	19 12 09	No	43.222	minerals (for example sand, stones)	R5	M	Weighed	Offsite in Ireland	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
Within the Country	19 12 12	No	492.273	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	R4	M	Weighed	Offsite in Ireland	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland		
Within the Country	20 01 21	Yes	82.464	fluorescent tubes and other mercury-containing waste	R4	M	Weighed	Offsite in Ireland	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland	Confidential Information,,,,,,,,,,Ireland	,,,,,,,Ireland
To Other Countries	20 01 21	Yes	20.058	fluorescent tubes and other mercury-containing waste	R4	M	Weighed	Abroad	KMK Metals Recycling Ltd ,W0113-03	Cappincur Industrial Estate,Daingean Road,Tullamore,Co Offaly,Ireland	Confidential Information,,,,,,,,,,Ireland	,,,,,,,Ireland

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