

NPL REPORT AS 28

**UK Heavy Metals Network
Expansion Report**

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NOT RESTRICTED

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UK Heavy Metals Network Expansion Report

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Approved on behalf of the Managing Director, NPL
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Executive Summary

Due the implementation of the 4th EU Daughter Directive, 2004/107/EC, the Department for the Environment, Food and Rural Affairs (Defra) commissioned some modelling of expected exceedences of the limit values and the upper and lower assessment thresholds for Cadmium, Arsenic, Nickel in the UK^[1]. The results of this modelling highlighted the need additional monitoring at 11 locations across England and Wales. As NPL ran the UK Heavy Metals Network on behalf of Defra, they were tasked in expanding the Network by 11 sites.

Work started in October 2007 to identify potential sites and all 11 sites were installed and collecting data by August 2008.

In addition four monitoring locations were highlighted that no longer required monitoring and hence these sites were closed. Monitoring at these sites ceased at the end of August 2007.

1.0 Introduction

Due the implementation of the 4th EU Daughter Directive, 2004/107/EC, the Department for the Environment, Food and Rural Affairs (Defra) commissioned some modelling of expected exceedences of the limit values and the upper and lower assessment thresholds for Cadmium, Arsenic, Nickel in the UK^[1]. The results of this modelling highlighted the need additional monitoring at 11 locations across England and Wales. As NPL ran the UK Heavy Metals Network on behalf of Defra, they were tasked in expanding the Network by 11 sites.

Additional monitoring was required in the following locations:

- Swansea Urban Area
- South Wales Zone
- Cardiff Urban Area
- Belfast Metropolitan Urban Area
- Sheffield Urban Area
- Yorkshire and Humberside Zone – x2
- Teesside Agglomeration– x2
- Eastern Zone – x2

In addition four monitoring locations were highlighted that no longer required monitoring and hence these sites were closed. The monitoring stations closed were at the following locations:

Glasgow
Newcastle
Leeds
London – Brent

2.0 Site Installations

2.1 *Swansea Urban Area*

The Modelling Report^[1] showed that an up and downwind site was required around an industrial process in Clydach in the Swansea Urban Area.

The Metals network already had one site at Glais, which was not ideally suited as a down wind site so the network took on Swansea council's site at Coedgwilym Cemetery, while the Glais site reverted to council control.

For an up wind site, Swansea Council was already running a site at Morriston, so this was taken into the Network.

In addition, Swansea council operate a sampler at YGG Gellionnen School, so this and the Glais site have become affiliate sites. Swansea Council pay NPL for the filter analysis, while the Network covers the site audits.

2.1.1 Morriston

The site is located at:

Wychtree Street, Morriston, Swansea, SA6 8EX, Map Ref: 267168,197593

Figure 1 shows a photograph of the site.



Figure 1 **Morriston**

2.1.2 Coedgwilym Cemetery

The site is located at:

Swansea Road, Clydach, Pontardawe, SA8 4BY, Map Ref: 270907,202100

Figure 2 shows a photograph of the site.



Figure 2 **Coedgwilym Cemetery**

2.1.3 YGG Gellionnen School

The site is located at:

Gellionnen Road, Clydach, Pontardawe, SA6 5LB, Map Ref: 269240,201914

Figure 3 shows a photograph of the site.



Figure 3 **YGG Gellionnen School**

2.2 South Wales Zone

The Modelling Report showed that one point source in the South Wales Zone did not have a down wind monitoring site. This point source was located in Port Talbot.

2.2.1 Port Talbot AURN

The site is colocated with the Port Talbot AURN site at:

Port Talbot Fire Station, Rear Of Commercial Road, Port Talbot, West Glamorgan, SA13 1LG, Map Ref: 277342,188830

Figure 4 shows a photograph of the site.



Figure 4 Port Talbot

2.3 Cardiff Urban Area

The Modelling Report showed one point source in the Cardiff Urban Area did not have a down wind monitoring site. This point source was located in South Eastern Cardiff.

2.3.1 Rumney School

The site is located at:

Greenway Primary School, Llanstephen Road, Rumney, Cardiff, CF3 3J,
Map Ref: 322188,179500

Figure 5 shows a photograph of the site.



Figure 5 Rumney School

2.4 Belfast Metropolitan Urban Area

The Modelling Report identified the Belfast Metropolitan Urban Area as having possible exceedences of the Lower Assessment Threshold due to diffuse sources related to domestic solid fuel combustion. Therefore, a site needed to be installed.

2.4.1 Belfast Centre

The site is colocated with the Belfast Centre AURN site at:

Lombard Street, Belfast, BT1 1RB, Map Ref: NW464298

Figure 6 shows a photograph of the site.



Figure 6 **Belfast Centre**

2.5 Sheffield Urban Area

The Modelling Report showed that one point source in the Sheffield Urban Area did not have an up wind monitoring site. This point source was located in the eastern side of the Urban Area.

2.5.1 Sheffield Centre AURN

The site is colocated with the Sheffield Centre AURN site at:

Charter Square, Sheffield, S1

Figure 7 shows a photograph of the site.



Figure 7 **Sheffield Centre**

2.6 Yorkshire and Humberside Zone

The Modelling Report showed that one point source in the Yorkshire and Humberside did not have either an up wind or down wind monitoring site. Sites were installed at pre-existing monitoring stations at Scunthorpe Town and Santon, which are upwind and down wind, respectively, of the industrial source to the East of Scunthorpe.

2.6.1 Scunthorpe Town

The site is colocated with the Scunthorpe Town AURN site at:

Rowlands Road, Scunthorpe, North Lincolnshire, DN16 1TJ, Map Ref: 490312,410870

Figure 8 shows a photograph of the site.



Figure 8 Scunthorpe Town

2.6.2 Santon

The site is located with the local Councils monitoring site at:

Dawes Lane, Santon, Scunthorpe, North Lincolnshire, DN16 1XH, Map Ref: 492944, 411934

Figure 9 shows a photograph of the site.



Figure 9 Santon

2.7 Teesside Agglomeration

The Modelling Report showed that one point source in the Teesside Agglomeration did not have either an up wind or down wind monitoring site. Sites were installed at Normanby, a new site outside of Middlesbrough and in a pre-existing monitoring station in Redcar, which are upwind and down wind, respectively, of the industrial source in Redcar.

2.7.1 Redcar Ex-AURN

The site is colocated with the Redcar ex-AURN site at:

Further Education Centre, Corporation Road, Redcar, TS10 1HA,
Map Ref: 459965,524565

Figure 10 shows a photograph of the site.



Figure 10 Redcar

2.7.2 Redcar – Flatts Lane

The site is located at the following location:

Tees, Esk and Wear Valleys NHS Trust, The Flatts Lane Centre, Flatts Lane, Normanby, Middlesbrough, TS6 0SZ, Map Ref: 455300,517055

Figure 11 shows a photograph of the site.



Figure 11 **Redcar – Flatts Lane**

2.8 Eastern Zone

The Modelling Report showed that one point source in the Eastern Zone did not have either an up wind or down wind monitoring site. Sites were installed at new sites in Bean and Chadwell St Mary, which are upwind and down wind, respectively, of the industrial source near Northfleet in Kent.

2.8.1 Chadwell St Mary

The site is located at the following location:

Council Area Housing Office, Linford Road, Chadwell St Mary, Essex, RM16 4JY,
Map Ref: 564715,178525.

Figure 12 shows a photograph of the site.



Figure 12 Chadwell St Mary

2.8.2 Bean School

The site is located at the following location:

Bean Primary School, Bean, Dartford, Kent, DA2 8AW, Map Ref: 559233,171933

Figure 13 shows a photograph of the site.



Figure 13 **Bean School**

3.0 Site Closures and Equipment Overhaul

Measurements ceased at the following sites on 31st August and the samplers removed from site:

Glasgow
Newcastle
Leeds
London – Brent

The samplers were returned to the Equipment Support Unit (ESU), serviced and then installed into the new sites when required.

In addition six samplers, in the UK Metals Network Equipment Inventory, were retrieved from the previous contractor and reconditioned by the current ESU. These samplers were then installed into the new sites as required.

One new sampler was purchased by Defra to complete the site installations, with this contract being placed directly by Defra with the ESU.

4.0 New Monitoring Data

Table 1 gives the start dates for monitoring at the new sites.

Site	Start Date
Morrison	13/12/2007
Coedgwilym Cemetery	13/12/2007
YGG Gellionnen School	13/12/2007
Belfast Centre	17/12/2007
Port Talbot	30/01/2008
Sheffield Centre	30/01/2008
Scunthorpe Town	29/04/2008
Santon	29/04/2008
Redcar	22/05/2008
Chadwell St Mary	06/06/2008
Rumney School	17/06/2008
Bean School	17/07/2008
Flatts Lane	08/08/2008

Table 1 Monitoring Start Dates for the New Sites

As sites have come online the data reported has been included in the Network Quarterly Reports to Defra.

References

- 1 Tony Bush, Preliminary assessment of PAH and heavy metal levels in the UK, AEAT Report AEAT/ENV/R/2243, 2005.