



Comhairle Cathrach
Bhaile Átha Cliath
Dublin City Council

Environment and Transportation Department,
Block 2, Floor 6,
Civic Offices,
Dublin 8.

15th April 2015.

To Each Member of the
Environment Strategic Policy Committee

Dublin Waste to Energy (DWtE) Project

1 Construction Status

1.1 Dublin Waste to Energy Limited (DWTEL) Project Team

DWTEL has appointed PM Limited (PML) and Hitachi Zosen Inova (HZI) as the main sub contractors for the construction phase of the project.

PML's scope includes the design of the civil works and construction management services for the project. HZI's scope includes the engineering, procurement and installation of all of the process systems for the project.

1.2 Dublin City Council Client Representative (CR) for the Construction and Commissioning Phases of the Dublin Waste to Energy Project

DCC appointed CDM Smith as the lead consultant for the Client Representative Team for the 49 month Construction and Commissioning Phases of the DWtE facility, on 1 December 2014.

The scope of the CR appointment is to ensure that the facility is constructed in accordance with all statutory requirements, licences and consents.

1.3 Progress to Date

Progress in the key areas is summarised below:

Construction

- PML and HZI will manage the facility construction utilising specialist sub contractors for specific works packages.
- A notice letter advising construction commencement was issued to the surrounding businesses and property owners on 22 September 2014.
- Site security was transferred to Covanta as of 20 September 2014.
- The Site Enabling subcontractor mobilized on 22 September 2014 and began weed control, refurbishment of existing site cabins and laying down traffic areas to make the site safe for construction activities.
- The initial piling subcontractor mobilized to the site and commenced piling work in October 2014; to date approximately 85% of the piles required for the construction of the facility have been installed on site.
- The concrete foundations contractor mobilised to site in January 2015 and has completed the waste bunker slab and the installation of reinforcing steel and formwork associated with the boiler and tipping hall in advance of concrete pours.
- The contractor is actively developing the temporary construction compound to the South of the site, which will begin to be occupied next month.
- Design and Procurement of the major facility components remain the dominant activity of HZI and PML.
- Facility construction is expected to take approximately three years, with commencement of operations targeted for late 2017, currently construction activity on site is progressing in line with the construction schedule.



Site Aerial View Looking Northeast - March 2015 (Copyright PML)

2 Environmental Impact

Construction of the DWtE facility recommenced in October 2014 and an environmental monitoring programme in accordance with the 'Dublin Waste to Energy – Construction Phase Monitoring Scheme', September 2009 has been implemented. The fourth Quarterly Report on the Construction Phase Monitoring Scheme relates to environmental monitoring undertaken for the period of October to December 2014 and is presented as Appendix 1 to this report.

3 Community Liaison

Dublin City Council is in the process of establishing a Community Gain Liaison Committee in accordance with statutory approvals obtained for the Waste to Energy project. The Committee will be responsible for administering the Community Gain Fund and for decisions on projects to be supported by the fund. In addition, the Committee will act as a liaison between Dublin City Council and the local community in relation to ongoing monitoring of the construction/operation phases of the facility.

The committee will consist of:

- 1 Independent Chair to be appointed by the Chief Executive of Dublin City Council
- 3 Local Community Representatives
- 3 Elected members of Dublin City Council
- 2 Officials of Dublin City Council
- 1 Contractor/Operator representative

Following consultation with the South East Area Committee, in whose area the development is located, nominations were sought from 3 distinct sectors of the community in the catchment area, to ensure all interest groups are represented:

- 1 from eligible community groups**
- 1 from eligible education/sports/arts/environment/culture groups etc**
- 1 from the business sector**

An assessment panel comprising the Chair of the Community Gain Liaison Committee, the Lord Mayor and the Executive Manager Environment & Transportation Department shall be established to consider applications and to make a recommendation to the Chief Executive who will appoint one representative from each sector group.

The three elected members from Dublin City Council nominated and agreed at the South East Area Committee meeting on the 9th March, for the period March 2015 to April 2017 are:

Cllr Chris Andrews,

Cllr Claire Byrne &

Cllr Kieran Binchy

And from the period May 2017 to May 2019

Cllr Dermot Lacey,

Cllr Frank Kennedy &

Cllr Paddy McCartan.

At the end of April 2015, the community gain fund will stand at €2.14 million.

4 Compliance

There are no non-compliance issues to report.

Declan Wallace
Executive Manager

Construction Phase Environmental Monitoring Report - Quarter 4 (October - December) 2014

Covanta Europe Engineering Limited
Dublin Waste to Energy Facility
IE0311183-22-RP-0028, Issue: B

Customer Document Number: PMG-ENV-RPT-0000-0028



Document Sign Off

Environmental Monitoring Report - Quarter 4 (October - December) 2014

Covanta Europe Engineering Limited
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1 Introduction

An environmental monitoring programme has been implemented during the construction stage of the Dublin Waste to Energy (DWTE) Project. In conjunction with the monitoring, a number of controls and procedures have been implemented during construction activities to avoid, or minimise, potential adverse impacts to the environment and local community.

The monitoring programme will assist in demonstrating compliance with the conditions and requirements laid out in An Bord Pleanála Order-29S.EF2022, Condition 13d; *"A scheme for monitoring noise, dust deposition and suspended solids in surface water run-offs and adjacent waters shall be prepared for the construction phase of the development. Details of the scheme shall be made available for inspection at the offices of Dublin City Council and at a local office in the Ringsend/Poolbeg area prior to the commencement of construction works. Monitoring shall be carried out during the construction phase and reports on the monitoring shall be made available for inspection at the offices in question on a 3 monthly basis. The reports shall compare monitored results with standards set out in the environmental impact statement or standards given in recognised national or international guidelines as relevant."*

Construction of the DWTE facility recommenced in October 2014 and an environmental monitoring programme in accordance with the 'Dublin Waste to Energy - Construction Phase Monitoring Scheme' September 2009 has been implemented. The 4th Quarterly Report on the Construction Phase Monitoring Scheme relates to environmental monitoring undertaken for the period of October to December 2014. The PM Group construction management team were present on site throughout the October to December 2014 monitoring period. The PM Group construction management team ensured construction works were undertaken to comply with environmental procedures for the site. Environmental monitoring with regards to noise, dust deposition and suspended solids commenced with construction works.

2 Local Environment

The main population centres of Ringsend, Irishtown and Sandymount are located approximately 1km from the boundary of the site. The nearest educational establishments are located approximately 850m and 1km south-west of the site and 1.5km west of the site boundary. Representative sensitive receptors have been monitored throughout the construction period of October to December 2014 for noise.

The closest sensitive receptors to the site are the residential properties at Pigeon House Road which are located approximately 865m west of the site boundary. A map of sensitive locations and environmental monitoring points (noise, dust and surface water) are included in Figure 2.1.

The identified sensitive noise locations are N1 – N6 as follows:

- N1 - Rehab Institute
- N2 – Seafort Avenue
- N3 – Beach Avenue
- N4 – Leukos Road
- N5 – Pigeon House Road
- N6 – Walkway (Irishtown Nature Reserve)



Figure 2.1: Environmental Monitoring Locations

3 Noise

Monitoring of noise levels at sensitive locations is required during construction to assess compliance with the requirements of the Environmental Impact Statement (EIS) and An Bord Pleanála Order-29S.EF2022, Condition 13d.

3.1 Noise Guidance & Standards

The noise monitoring was conducted in accordance with the following guidance:

- International Standard ISO 1996-1:2003 - Acoustics – Description and Measurement of Environmental Noise (2003)
- BS 4142:1997 - Rating industrial noise affecting mixed residential and industrial areas.

3.2 Measurement Parameters

Noise is measured in terms of decibels (dB). The various measurement parameters and noise terminology are defined below.

- Decibel (dB)
Decibel (dB) is the standard unit for expressing the noise level (sound pressure level). It is calculated as a logarithm of the intensity of sound. It is derived from the logarithm of the ratio between the value of a quantity and a reference quantity. For sound pressure level the reference quantity is $20\mu\text{Pa}$ which is the threshold of normal hearing and equates to 0dB. At the upper end of the scale 140dB is the threshold of pain.
- A-weighted Decibel (dBA)
Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sound of different frequency (pitch) in a similar way to the human ear. This takes account of the fact that the human ear has different sensitivities to sound at different frequencies.
- LAeq
The equivalent continuous sound level – the sound pressure level of a steady sound having the same energy as a fluctuating sound over a specified measuring period. It can be considered similar to an average level. The LAeq value is the A-weighted Leq.
- LA90 and LA10 Values
The LA90 and LA10 values represent the A-weighted sound pressure levels exceeded for a percentage of the instrument measuring time. The LA90 represents the sound pressure level exceeded for 90% of the monitoring period and is a good indicator of the background noise level excluding peak noise events. LA10 indicates the sound pressure level exceeded for 10% of the monitoring period and is a good parameter for expressing event noise such as passing traffic.
- LAMax (dBA)
The maximum instantaneous value recorded over the monitoring period including A-weighting

3.3 Construction Noise Limits at Sensitive Locations

The measured and calculated noise results at the noise sensitive locations during construction are compared against the values identified in 'British Standard 5228-1:2009: Code of practice for noise and vibration control on construction and open sites – Part 1:Noise (Section F.2.2)' and presented in Table 3.1 below:

Table 3.1: Maximum Permissible Noise Levels at the Facade of Dwellings during Construction

	Sensitive Locations					
	Rehab Institute	Seafort Avenue	Beach Avenue	Leukos Road	Pigeon House Road	Walkway Irishtown Nature Park
Monday - Friday 0700hrs to 1900hrs Rating level, LAeq(1hr)dB	75	75	75	75	75	75

3.4 Noise Monitoring Results

Monitoring was undertaken at sensitive receptors and site boundary locations during construction works. The noise monitoring survey was carried out during the daytime period of 07:00 to 19:00. The survey was carried out over the months October to December 2014. For the daytime survey 1 No. 30 minute sample was taken at each of the noise monitoring locations. No night-time works are currently being undertaken at the site.

3.4.1 Accredited Noise Calculations

To establish the contribution of the October - December 2014 DWTE site activities, to the noise levels at the sensitive receptors, the '*British Standard 5228-1:2009: Code of practice for noise and vibration control on construction and open sites – Part 1:Noise (Section F.2.2)*' was used to calculate the noise levels at the sensitive receptors based on noise levels monitored at the western and southern site boundary locations only.

These boundaries are used as they represent the closest boundaries to the sensitive receptors, and the most accurate calculation of noise levels. On this basis, when both are available, the southern boundary is used to calculate noise levels for the Rehab Institute, Seafort Avenue, Beach Avenue and Irishtown Nature Park. The Western Boundary is used to calculate the noise levels at the Coastguard Cottages and Leukos Road.

Using the BS 5228 Standard calculation, the highest noise result calculated for the months of October to December 2014 at each of the sensitive locations is presented in Table 3.2.

Table 3.2: The Contribution of the DWTE Site Activities to Noise Levels at Sensitive Receptors (Accredited Calculations)

	Sensitive Locations					
	Rehab Institute	Seafort Avenue	Beach Avenue	Leukos Road	Pigeon House Road	Irishtown Nature Park
	N1	N2	N3	N4	N5	N6
October 2014 Results level, LAeq(30 min)dB	26.0	25.0	23.0	26.0	27.0	39.0
November 2014 Results level, LAeq(30 min)dB	30.0	29.0	28.0	32.0	32.0	43.0
December 2014 Results level, LAeq(30 min)dB	30.0	30.0	28.0	25.0	25.0	44.0

3.5 Conclusion

During the October to December period the greatest noise level contribution at a residential sensitive receptor was 32dB, calculated at the Pigeon House Road (N5) and Leukos Road (N4). The greatest noise level at Irishtown Nature Park was calculated as 44dB (N6).

These noise levels are significantly lower than the construction noise limits as detailed in Table 3.1 of 75 dB which apply Monday – Friday 0700 hrs to 1900 hrs when construction activities were occurring and noise monitoring was undertaken.

On this basis, it is concluded that the site activities undertaken during the October – December 2014 construction period are not causing exceedances of the construction noise limit values.

4 Dust Deposition

A scheme for monitoring dust deposition and direction has been developed for the construction phase of the development.

4.1 Monitoring Method

Monitoring was undertaken by the PEC in accordance with the '*Dublin Waste to Energy - Construction Phase Monitoring Scheme*', September 2009. Dust monitoring locations D1 – D4 are shown in Figure 2.1.

There are no legislative regulations regarding fugitive dust during construction either in Ireland or the UK. The "Technical Instructions on Air Quality Control – TA Luft" 2002 emission value for dustfall of 350 mg/m²/day is therefore used as the maximum guideline level during construction.

4.2 Monitoring Results

4.2.1 Weather Conditions

The dust monitoring gauges were installed in October with 1st monitoring results reported in November. Dust monitoring results for November and December are included in Tables 4.1 and 4.2 below. The average weather conditions during the October to December 2014 monitoring period are given below;

- October 2014
 - Average Precipitation: 1.97mm/ Day
 - Average Wind Speed: 20.8 Km/H
 - Average Temperature: 10.7° C
- November 2014
 - Average Precipitation: 4.7mm/ Day
 - Average Wind Speed: 17.0 Km/H
 - Average Temperature: 8.0° C
- December 2014
 - Average Precipitation: 1.67mm/ Day
 - Average Wind Speed: 24.22 Km/H
 - Average Temperature: 4.76° C

4.2.2 Dust Deposition – Bergerhoff Gauges

The dust deposition results from the Bergerhoff gauges are given in Tables 4.1 – 4.2:

Table 4.1: Dust Deposition Results – November 2014

Sample Locations	Date Deployed	Date Collected	Dust Collected mg/gauge	Rate of Dust Deposition mg/m ² /day	TA Luft Limit mg/m ² /day
D1 (West)	28.10.2014	20.11.14	14.1	108.1	350
D2 (North)	28.10.2014	20.11.14	4.7	36.02	350
D3 (East)	28.10.2014	20.11.14	10.8	82.8	350
D4 (South)	28.10.2014	20.11.14	3.0	23.0	350

Table 4.2: Dust Deposition Results – December 2014

Sample Locations	Date Deployed	Date Collected	Dust Collected mg/gauge	Rate of Dust Deposition mg/m ² /day	TA Luft Limit mg/m ² /day
D1 (West)	20.11.2014	18.12.14	21.9	137.9	350
D2 (North)	20.11.2014	18.12.14	27.1	170.6	350
D3 (East)	20.11.2014	18.12.14	27.1	170.6	350
D4 (South)	20.11.2014	18.12.14	14.9	93.8	350

4.2.3 Dust Deposition - Sticky Pads

Using a Sticky Pad Reader the Effective Area Coverage (EAC) is calculated to give %EAC/day. Guidance (Beaman & Kingsbury) indicates the %EAC/day values which are typical of living conditions i.e. rural, industrial etc which are detailed in Tables 4.2 and 4.3 below. The sticky pad results are presented in Table 4.4 below.

Using a Sticky Pad Reader the Effective Area Coverage (EAC) is calculated to give %EAC/day. Guidance (Beaman & Kingsbury) details the %EAC/day values which are typical of living conditions i.e. rural, industrial etc.

Table 4.2: Typical Levels in Identified Environmental Situation

%EAC/day	Situation
0.01	Rural
0.02	Suburban
0.3-0.4	Urban
0.5	Rural summertime
0.8-1.0	Industrial

This guidance also outlines typical complaint thresholds. These are detailed in Table 4.3 below.

Table 4.3: Complaint Thresholds likely with Percentage Dusts Detected

%EAC/day	Response
0.2	Noticeable
0.5	Possible complaints
0.7	Objectionable
2.0	Probable complaints
5.0	Serious complaints

The Sticky Pad analysis results are to be presented in Table 4.4 below;

Table 4.4: Sticky Pad Results – December 2014

Sample Locations	Date Exposed	Dated Collected	Period of Exposure	Exposed Value	Non Exposed/ Reference Value	%/EAC/ Day	Comments
D1 (West)	11.12.2014	18.12.2014	7 days	95	92	0.57	Highest build up of dust was observed on the east section of the pad.
D2 (North)	11.12.2014	18.12.2014	7 days	93	99	0.85	Highest build up of dust was observed on the south section of the pad.
D3 (East)	11.12.2014	18.12.2014	7 days	92	98	0.85	Highest build up of dust was observed on the north section of the pad.
D4 (South)	11.12.2014	18.12.2014	7 days	95	98	0.43	Highest build up of dust was observed on the north section of the pad.

4.3 Conclusions

4.3.1 Bergerhoff Gauges

The "Technical Instructions on Air Quality Control – TA Luft" 2002 emission value for dustfall of 350 mg/m²/day was not exceeded during Quarter 4 2014 (October – December 2014).

The highest rate of dust deposition was recorded during the December 2014 monitoring period, with 170.6 mg/m²/day at Location 2(North) and Location 3(East).

4.3.2 Sticky Pads

The highest level of EAC reported for the Quarter 4 2014 monitoring period was 0.85% EAC/day, recorded at Location 2 (North) and Location 3 (East). The sticky pad results recorded in December 2014 ranged from 0.43 – 0.85% EAC/day. The results are above the level of objectable complaints (0.7) but below the level considered probably complaints.

The control measures set out in the Environmental Impact Statement and the 'Dublin Waste to Energy - Construction Phase Monitoring Scheme', September 2009 have been reviewed and will continue to be implemented.

Weekly inspections in October, November and December 2014 did not identify any significant dust emissions on site. It is not considered that construction activities have had an adverse impact in terms of dust deposition at the sensitive receptors.

5 Surface Water

A scheme for monitoring suspended solids in surface waters adjacent to the site is implemented during the construction phase of the project, as per the EIS requirements and in accordance with An Bord Pleanála Order-29S.EF2022.

5.1 Monitoring Method

Monitoring was carried out by an independent laboratory technician in accordance with 'Dublin Waste to Energy - Construction Phase Monitoring Scheme' September 2009.

5.2 Monitoring Results

Analysis of suspended solids in surface water at the four surface water monitoring locations was undertaken.

A surface water quality trigger level for suspended solids was determined by calculating the 90thile levels from the baseline (preconstruction) monitoring results. The trigger level was determined to be 198mg/litre.

The suspended solids results for October to December 2014 are presented in Table 5.1 below.

Table 5.1: Surface Water Monitoring – Suspended Solids Results

Parameter	Units	Date	Time	High Tide	Low Tide	SW(01)	SW(02)s	SW(02)d	SW(03)s	SW(03)d	SW(04)
Location	-	-				Cooling Water Channel	Fairway West (surface)	Fairway West (deep)	Fairway East (surface)	Fairway East-Pier (deep)	Irishtown Nature Park
Grid Reference Easting	-	-				6°11'54.95W	6°12'170W	6°12'170W	6°11'640W	6°11'640W	6°12'02.01W
Grid Reference Northing						53°20'28.32N	53°20'596N	53°20'596N	53°20'606N	53°20'606N	53°20'08.35N
Suspended Solids (October 2014)	mg/l	30/10/14	08:45-11:25	03:38 & 15:58	09:18 & 21:53	31	22	49	32	75	78
Suspended Solids (November 2014)	mg/l	20/11/14	09:45-11:00	10:03 & 22:15	03:22 & 15:39	98	20	90	20	132	300
Suspended Solids (December 2014)	mg/l	18/12/14	10:00-11:15	08:43 & 21:00	01:56 & 14:20	100	76	84	104	105	174

5.3 Conclusions

In the Quarter 4 2014 period the suspended solids ranged from 38 – 300mg/l. The highest level of suspended solids was recorded at the Irishtown Nature Park, SW(04) in November 2014 with 300mg/l. Baseline monitoring from 2010 – February 2014 ranged from 1 - 508mg/l. The result at SW(04) is probably due to tidal mixing of the waters at this location creating higher suspended solids at this location. No construction works are currently being undertaken adjacent to surface water bodies.

Visual monitoring undertaken from site and close to shore for the October – December 2014 period did not identify any emissions to surface water resulting from the DWTE site.