ANNUAL ENVIRONMENTAL REPORT – 2009
KYLETALESHA WASTE TRANSER STATION
PORTLAOISE, COUNTY LAOIS
WASTE LICENCE REG. NO. W0194-02
ORIGINAL
MARCH 2010

BORD NA MÓNA

AES

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REVISION CONTROL TABLE

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Abstract: This report presents the Annual Environmental Report for Kyletalesha Waste Transfer Station Portlaoise, County Laois to the Environmental Protection Agency. The report covers the annual reporting period of 2009.

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1. INTRODUCTION

The Environmental Protection Agency (EPA) issued Advanced Environmental Solutions (Ireland) Ltd. with a waste licence for its Waste Transfer Station at Kyletalesha, Portlaoise, Co. Laois (E245 N202), on 30th March 2007. The waste licence reference number is W0194-02.

The facility is currently licensed to accept a maximum of 99,000 tonnes of waste per annum (80,000 tonnes of Non-hazardous household waste, 3,000 tonnes of Non-hazardous industrial sludges, 5,000 tonnes of Hazardous waste (WEEE), 5,000 tonnes of C&D waste and 6,000 tonnes of Sewage sludge). The site is located in Kyletalesha, north of Portlaoise town.

In May 2007, Bord na Móna PLC acquired Advanced Environmental Solution (AES) Ireland Ltd., one of Irelands leading waste management companies which services 5,000 commercial customers and 60,000 domestic customers. The acquisition was a key part of the Bord na Móna PLC's diversification strategy and one which tied in perfectly with the existing Bord na Móna PLC areas of operation.

AES Ireland Ltd. currently operates a network of recycling & transfer facilities throughout Leinster and further afield. These facilities are located in Navan, Co. Meath, Tullamore, Co. Offaly, Portlaoise, Co. Laois, Nenagh, Co. Tipperary and Rosslare, Co. Wexford.

Fehily Timoney & Company (FTC) was retained to prepare and submit the Annual Environmental Report (AER) for the facility in compliance with Condition 11.7 and Schedule E of the waste licence.

This report addresses Condition 11.7 of the waste licence for the facility.

Condition 11.7 states that:

The licensee shall submit to the Agency, by the 31st March of each year, an AER covering the previous calendar year. This report, which shall be to the satisfaction of the Agency, shall include as a minimum the information specified in Schedule F: Annual Environmental Report of this licence and shall be prepared in accordance with any relevant guidelines issued by the Agency.

This report addresses the items listed in *Schedule F: Annual Environmental Report* of the waste licence for the facility. This AER covers the reporting period from 1st January 2009 up to 31st December 2009.

1.1. Site Description and Activities

As previously referred to, AES operates a waste licence (W0194-02) for its Waste Transfer Station at at Kyletalesha, Portlaoise, Co. Laois. Operations at the facility include the receipt of domestic, commercial, industrial and construction and demolition waste, which is sorted and segregated for onward recycling/recovery in accordance with the recycling potential. Waste deemed unsuitable for recycling/recovery is segregated and compacted for disposal off-site.

1.1.1. Waste Handling Procedure

Normal operational hours at the site are between the hours of 07.30 to 19.00 Monday to Saturday inclusive. Waste in not accepted at the facility on Sundays or Bank Holidays.

Current waste acceptance procedures involve the use of a computer based programme called Integrated Waste System (IWS). The software is linked to the on-site weighbridge and is used for recording of waste quantities accepted on-site. The vehicle registration number, customer and product is inputted into the system and from this detail, the source of the waste can be obtained.

Each waste load is visually inspected to ensure that all wastes comply with the requirements of the Waste licence, W0194-02. The waste Segregations Manager is responsible for carrying out the waste visual inspections and for maintaining a written record of all loads.

Within the Recycling Plant Building the waste is sorted according to its recycling potential and is either deemed suitable for further onward recycling/recovery or transported off-site for final disposal (non-recoverable waste) to an authorised landfill. Materials commonly accepted for recycling include Steel/Iron, Cardboard/ Newsprint, Timber, Construction & Demolition, Green Waste, Plastic, Glass and gas cylinders. Household mixed recyclables are collected and accepted at the facility, waste is sorted and segregated and bailed for further recycling off-site. All waste deemed unsuitable for recycling/ recovery is loaded into designated compactor bins, which are sealed and then transported to authorised facilities.

All loads transported from the facility are weighed on the weighbridge. An individual weigh docket is printed for each waste load.

The site monitoring location map is included in Appendix I.

2. EMISSIONS FROM THE FACILITY

Emissions as per Schedule B of the Waste Licence, W194-02, relating to energy and the use of the proposed bio-filters are not yet applicable. Surface water, groundwater, dust and noise monitoring results are discussed in Section 6 of this report and the full reports are included in Appendix II.

3. WASTE MANAGEMENT RECORD

The waste that arrives at the site may be characterised as follows:

- Household Waste
- Commercial Waste
- Industrial-Non hazardous Waste
- Construction and Demolition
- Household Hazardous Waste

These waste classifications, subsequent to inspection, can be further categorised as been either suitable for recycling (picking line), recycling offsite or disposed to off-site authorised disposal facilities. Household hazardous waste in the form of batteries and fluorescent tubing that are accepted to the site are segregated into individual storage skips/ areas within the plant and subsequently by authorised contractors for further treatment/disposal. Any materials that are suspect in nature (i.e. hazardous or not acceptable at the facility) are routed to the Waste Quarantine Area within the Recycling Plant for further examination and processing prior to removal off-site for appropriate treatment/disposal by an appropriate hazardous waste contractor.

3.1. Waste Activities carried out at the Facility

Waste activities at the facility are restricted to those outlined in *Part 1 - Activities Licensed* of the Waste Licence.

Licensed waste disposal activities, in accordance with the Third Schedule of the Waste Management Acts 1996 to 2008

Class 6 Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1 to 5 or paragraphs 7 to 10 of this Schedule.

Class 11 Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule.

Class 12 Repacking prior to submission to any activity referred to in a preceding paragraph of this Schedule.

Class 13 Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned was produced.

Licensed waste recovery activities, in accordance with the Fourth Schedule of the Waste Management Acts 1996 to 2008

Class 2 Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological processes). (P)

Class 3 Recycling or reclamation of metals and metal compounds:

Class 4 Recycling or reclamation of other inorganic materials:

Class 9 Use of any waste principally as a fuel or other means to generate energy

Class 11 Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule

Class 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:

3.2. Waste Quantities and Composition

The waste summary recorded for this reporting is presented in Table 3.1. Table 3.2 presents the waste recovered/ disposed from the facility.

Table 3.1: Outgoing Waste Recovered / Disposed from Kyletalesha Waste Transfer Station.

EWC Code	Outgoing Waste Volume *(tonne)*	Waste Recovery / Disposal Destination Name	Waste Recovery / Disposal Destination Address	Licence/ Permit No.
15 01 01 C – Cardboard	334.01	AES Tullamore	Cappincur Industrial Est. Daingean Rd, Tullamore Co. Offaly	W0104-02
15 01 02 PL – Plastic	7.72	Retech Processing, Enterprise Centre	Kells Road, Kings Court, Co. Meath	WP 07/04
15 01 02 PL – Plastic	16.04	AES Tullamore	Cappincur Industrial Est. Daingean Rd, Tullamore Co. Offaly	W0104-02
15 01 03 – Wooden packaging	15.34	Drehid WMF	Killinagh Upper, Carbury, Co. Kildare	W0201-03
15 01 03 – Wooden packaging	1751.84	Ormonde Organics	Killowen, Portlaw, Co. Kilkenny	
15 01 03 – Wooden packaging	201.08	Wexford CoCo Landfill	Holmestown, Barntown, Co. Wexford	W0191-01
15 01 03 – Wooden packaging	16.84	Finsa Forest Products Ltd.,	Scariff, Co. Clare	P0022-02
15 01 07 - Glass Packaging	872.34	Glassdon Ltd.,	52 Creagh Rd., Toomebridge, Co. Antrim	LN/08/103
15 01 07 - Glass Packaging	9.36	Glassco Recycling Ltd.	Site 4, Osberstown Business Park, Naas, Co. Kildare	WP160/2004
17 01 07 – C&D	2191.79	Drehid WMF	Killinagh Upper, Carbury, Co. Kildare	W0201-03
17 02 01 – Wood	226.71	Ormonde Organics	Killowen, Portlaw, Co. Kilkenny	
17 02 01 – Wood	29.39	Thorntons Waste Disposal Ltd.,	Killeen Rd. Ballyfermot, Dublin 10	W0044-02
17 04 07 - Mixed metals	563.06	MSM Recycling	Cookstown Industrial Est., Tallaght, Dublin 24	W0079-01
17 04 07 - Mixed metals	7.86	Wilton Waste Recycling	Kiffa, Ballyjamesduff, Co. Cavan	W06/03
17 09 04 –C&D	32.94	Drehid WMF	Killinagh Upper, Carbury, Co. Kildare	W0201-03
19 01 16 – Boiler dust	5.26	Drehid WMF	Killinagh Upper, Carbury, Co. Kildare	W0201-03
19 12 09 – Sand & Stone	9382.05	Drehid WMF	Killinagh Upper, Carbury, Co. Kildare	W0201-03
19 12 12 – Other mechanical treatment waste	291.1	Drehid WMF	Killinagh Upper, Carbury, Co. Kildare	W0201-03
20 01 08 – Biodegradable waste	1152.71	O'Toole Composting	Ballintrane, Fenagh, Co. Carlow	WP01/07
20 01 08 – Biodegradable waste	1026.42	AES Navan	Clonmagaddan, Proudstown, Navan, Co. Meath	W0131-02
20 01 39 – Plastics	176.66	Leinster Environmental	Clermont Business Park, Haggardstown, Dundalk, Co. Louth	WP 2008/06
20 01 39 – Plastics	70.2	Retech Processing, Enterprise Centre	Kells Road, Kings Court, Co. Meath	WP 07/04
20 01 39 – Plastics	9.08	Neiphin Trading T/A A1	Waste, Kerdiffstown, Naas, Co. Kildare	W0047-02
20 01 39 – Plastics	19.08	AWS Eco PlasticsLtd.,	Unit 2 Britannia Business Park, Point Pleasant Industrial Estate, Wallsend, Tyne & Wear NE28 6HA	EA.WML/732 74
20 03 01 C – Municipal Waste	28740.15	Drehid WMF	Killinagh Upper, Carbury, Co. Kildare	W0201-03
20 03 01 C – Municipal Waste	0.2	Laois CoCo Landfill	Kyletalesha, Portlaoise, Co. Laois	W0026-02
20 03 01 C – Municipal Waste	9.56	AES Tullamore	Cappincur Industrial Est. Daingean Rd, Tullamore Co. Offaly	W0104-02
20 03 01 K – Municipal Waste	6011.64	AES Tullamore	Cappincur Industrial Est. Daingean Rd, Tullamore Co. Offaly	W0104-02
Grand Total	**53170.43**			

4. RESOURCE AND ENERGY CONSUMPTION

4.1. Resource Consumption Summary

Resources consumed at the Kyletalesha Waste Transfer Station are recorded. During the Reporting period water usage on-site has been recorded (mains not metered) 2,365 litres. Rainwater is captured and used for bin washing and 54,552 litres was used. Fuel consumption for vehicles was 862,117.78 litres, while yard machines, home heating and trommell fuel consumption was 92,286 litres. Also hydraulic and engine oil usage was also recorded at 3,815 litres

The total electrical consumption at the site was 57,399 kWh during the reporting period. During the same period Wastewater emissions for 2009 was May - 14.88 Tonnes; September - 10.06 tonnes, which was a total of 24.94 tonnes (figures based on desludging & collection of foulwater in interceptor tanks)

4.2. Energy Efficiency Audit Report Summary

As part of the implementation of the Waste Licence W0194-01 (required by Condition 7.1 & 7.2) at the Advanced Environmental Solutions facility, at Kyletalesha an Energy Audit was carried out on the 26th June 2009.

The scope of the audit involved an assessment of the site with respect to energy consumption and subsequently identifying opportunities for energy use reduction and efficiency. Following this audit, it was considered that given the processes undertaken at the site and the energy performance at the facility, an energy management plan would facilitate the company with assessing ongoing energy consumption. Ongoing attention to non-production items for example space heating, canteen facilities and lighting, will identify areas where improvements can be continuously made.

An energy matrix demonstrates that some improvements in the practice of the Energy Policy are required to ensure that best practice is delivered across all areas of energy management. This is particularly important in the area of accountability and Monitoring and Targeting. Following the audit consideration should also be given to a permanent move from diesel generated power that is used to supply the main processing building on site. Implementation of the recommendations outlined in this report will assist in improving energy performance at the site.

The recommendations of the Energy Efficiency Audit will be rolled out during 2010.

The full Energy Efficiency Audit Report is included in Appendix III.

4.3. Water Consumption

As indicated in Section 4.1, as a means of reducing water usage on-site rainwater is captured and used for bin washing. During the reporting period 54,552 litres was captured and used for this purpose.

4.4. Raw Materials Consumption & Waste Generation

The site has initiated an Internal waste awareness campaign. AES have proactively installed recycling bins at every site and dedicated desk trays to collect office paper for recycling to improve the efficiency of the use of raw materials in processes and the reduction in waste generated on-site.

5. ENVIRONMENTAL OBJECTIVES & TARGETS

5.1. Progress against Targets for 2009

Progress against 209 Targets are presented in Table 5.1.

Table 5.1: Initial Objectives & Targets for 2009

Objective	Details
To begin harnessing the rainwater collected on-site.	This practice is now on-going. Rain water is being harvested and used on-site.
To complete trial on Dipetane to determine whether it can be utilised to reduce diesel consumption	This was not carried out in 2009 as they are no re-fuelling facilities on site at AES Portlaoise.
Internal waste awareness campaign	AES have proactively installed recycling bins at every site and dedicated desk trays to collect office paper for recycling.

5.2. Schedule of Objectives and Targets for 2010

Table 5.2: Proposed Objectives & Targets for 2010

Objective and Details
To obtain ISO 14001 certification for the facility.
To obtain OHSAS 18001 certification for the facility.
The upgrade of infrastructure at the AES Portlaoise facility (as specified in the SEW submitted to the Agency on 24th November 2009)
Internal waste awareness campaign
Raise awareness with contractors/visitors of the Environmental Policy on site
Reduction in the amount of BMW being sent to landfill by July 1st 2010 in accordance with conditions stated in the EU Landfill Directive.
Continue internal training programme and assessment of training needs for all staff during 2010.
Raising awareness to domestic customers on what can correctly go into the blue bin, by implementing a new label to demonstrate the appropriate material which may be put into this bin type.
Restructuring of the domestic collection routes with the aim minimising the amount of waste collection trucks on the roads.
Roll-out of the brown bin collection in Co. Laois

A report on the progress against the proposed Objectives and Targets for 2010 will be presented in the AER in 2011.

6. SUMMARY OF ENVIRONMENTAL MONITORING

Environmental monitoring at the facility is carried out in accordance with Condition 6 and Schedule C of the waste licence for the facility. The following sections 6.1 to 6.3 present the results of monitoring for the year 2009.

The environmental media monitored and the frequencies of monitoring at the facility are as follows:

1.	Noise	Annually
2.	Dust deposition	Three times per annum
3.	Groundwater	
4.	Storm water Emissions	Biannually

6.1. Noise Monitoring Report Summary

In compliance with the requirements of the waste licence, W0194-02, noise monitoring at the Kyletalesha Waste Transfer Station was undertaken. Monitoring was carried out on the 23 & 24 September 2009.

Noise levels were monitored at five monitoring locations, four boundary locations and one noise sensitive location (NSL). The noise monitoring locations are presented in Table. 5.1.

Table 6.1: Noise monitoring Locations

Map reference No.	Location Type	Location Description
N1	Boundary	North East corner of the site, directly beside the dust gauge
N2	Boundary	North West corner of the site, directly beside the dust gauge
N3	Boundary	South West corner of the site, beside the portacabin
N4	Boundary	South East corner of the site, to the right of the entrance gate
N5	Noise Sensitive Location	Private dwelling (approximately 500 m East of the site)

The L_{Aeq} levels recorded at the our boundary locations were 58 dB, 59 dB, 60 dB and 67 dB at N1, N2, N3 and N4 monitoring locations respectively. The L_{Aeq} recorded a N5, the NSL was 52 dB.

Table 6.2: Noise monitoring Results

Map reference No.	Measurement Period *(mins)*	Time	L_{Aeq} *(dB)*	L_{A10} *(dB)*	L_{A90} *(dB)*	L_{AfMAX} *(dB)*
N1	30	15.11 - 15.41	58	60	53	73
N2	30	15.44 – 16.14	59	62	52	80
N3	30	16.17 – 16.48	60 Note 1	62	49	82
N4	30	16.50 – 17.51	67	69	65	81
N5	30	09.18 – 09.52	52	52	40	72

Note 1 – as this is not a free field measurement a correction factor of – 3 dB may be applied resulting in 57 dB

The main sources of noise within the facility originated from trucks loading and unloading waste bins, machinery operating in the AES yard and recycling sheds and the intermittent beeping of reversing machinery. No tonal noise was detected from the boundary monitoring locations.

On the days of monitoring the site was extra busy, due to the incoming waste generated at the national ploughing championships in Athy.

It should be noted that all boundary monitoring locations were monitored within the boundary walls.

The facility is surrounded by 10 foot high mass concrete walls on the north west, south and south western boundaries. It can be reasonable assumed that these barriers will reduce noise emissions to the surrounding environs.

The dominant source of noise detected at the NSL was passing traffic (tractors, trucks, vans and cars) on the Kyetalesha road. No tonal noise was detected at the NSL and the LAeq was well within the EPA licence limit of 55 dB. Noise created at the facility was occasionally faintly audible.

The full noise report is included in Appendix II.

6.2. Ambient monitoring Report Summary

In compliance with the requirements of the waste licence, W0194-02, dust monitoring at the Kyletalesha Waste Transfer Station was undertaken. Monitoring was carried out on three times during the reporting period.

There are three dust monitoring locations on site, detailed in Table 6.1.

Table 6.3: Dust monitoring Locations

Monitoring Location	Grid Co-ordinates	Description
D1	286877E, 269773N	Back of site (Southeast)
D2	286777E, 269892N	Front of Site (Adjacent to road) (Northwest)
D3	286814E, 269889N	Front of Site (Adjacent to road) (North)
D4	286882E, 269871N	Located in Car Park (Northeast)

Three dust pots were installed for a 30 day period 14 January – 12 February, for a 28 day period from 30 April – 287 May and finally for a 32 day period from the 23 July – 24 August 2009. The results for monitoring are presented in Table 6.4.

Table 6.4: Dust monitoring Results

Monitoring Location	Dust Deposition Limit	Deposition Rate *(14 January – 12 February)*	Deposition Rate *(30 April – 28 May)*	Deposition Rate *(23 July – 24 August)*
	($mg.m^2/day$)			
D1	350	90	90	Note 1
D2	350	129	78	1278
D3	350	140	782	1221
D4	350	45	72	137

Note 1 – Dust gauge was in repair for this monitoring period

As can be seen in Tables 4.1, the dust deposition level of 782 mg/m2/day at the D3 dust monitoring location during the second round of monitoring and 1,278 mg/m2/day are both elevated above the dust deposition limit of 350mg/m2/day as per Schedule B5 of Waste Licence, W0131-02. D3 is located at the entrance to the AES Site. It is considered that emissions from the adjacent Kilsaran site contributed to the dust levels on both occasions.

Dust levels at D3 during the third round of monitoring were 1,221 mg/m2/day, but again it is considered that emissions from the adjacent Kilsaran site contributed to the dust levels.
The full dust monitoring reports are attached in Appendix II.

6.3. Wastewater discharges to Groundwater monitoring Report Summary

In compliance with the requirements of the waste licence, W0194-02, an assessment of wastewater discharges following treatment prior to discharge from Kyletalesha Waste Transfer Station was undertaken.

There is one wastewater discharge monitoring locations on site, detailed in Table 6.5.

Table 6.5: Wastewater discharges to Groundwater monitoring Locations

Monitoring Location	Description
SE-1	Northern corner of the facility

The sample abstracted from the discharge point from the Puraflo treatment tank was clear with no suspended solids and had a slight odour.

Table 6.6: Wastewater discharges to Groundwater monitoring Results

Parameter	SE-1 *(19 February)*	SE-1 *(29 July)*
On-site visual assessment	Clear, no suspended solids	Clear, no suspended solids
Odour	Slight	Slight
*BOD (TCMP) mg/l	< 2	4
*Ammonia mg/l as N	6	8.2

* - INAB Accredited Method

During sampling in February Ammonia was detected at a concentration of 6 mg/l and the BOD was < 2 mg/l. During sampling in July, Ammonia was detected at a concentration of 8.2 mg/l and the BOD was 4 mg/l.

The full wastewater discharges to groundwater monitoring reports are attached in Appendix II.

6.4. Surface water / Storm water monitoring report Summary

In compliance with the requirements of the waste licence, W0194-02, an assessment of surface water emissions from Kyletalesha Waste Transfer Station was undertaken on a biannual basis.

Surface water was collected from the four monitoring locations on-site, detailed in Table 6.7.

Table 6.7: Surface water monitoring Locations

Monitoring Location	Description
SW-1	Located beside the Knackery
SW-6	(Discharge point) located between SW-1 and SW-2
SW-2	Located immediately downstream of the weir and the discharge point
SW-4	Located downstream and across from the AES facility

Monitoring was undertaken on the 14 June and the 25 July 2009 and the results are presented in Table 6.8.

The full surface water / storm water emissions monitoring report is in included in Appendix II.

Table 6.8: Surface water monitoring Results

Parameter	SW-1 *(14 June)*	SW-6 *(14 June)*	SW-2 *(14 June)*	SW-4 *(14 June)*	SW-1 *(25 July)*	SW-6 *(25 July)*	SW-2 *(25 July)*	SW-4 *(25 July)*
pH (pH Units)	7.4	6.7	7.4	7.5	7.6	6.4	7.4	7.7
Conductivity µS/cm @ 25 ° C	817	1993	4010	1298	2647	983	1433	1268
On-site visual inspection	Light brown, no SS, slight oily surface	Dark brown, Slight oily surface, some fine SS	Light brown, slight oily surface, high SS	Light brown, some fine SS	Light brown, some SS	Back colour, oily surface, high SS	Brown colour, oily surface, some SS	Light Pale brown, oily surface, no SS
Odour	Slight odour	Strong odour	Slight odour	Slight odour	Slight odour	Strong odour	Strong odour	Slight odour
BOD (TCMP) mg/l	3	925	9	4	6	475	91	3
COD mg/l	89	1550	132	98	83	972	299	95
Suspended solids mg/l	5	140	77	6	29	232	68	22
* Oils, , fats & greases mg/l	32	86	36	10	6	21	9	15
** Mineral Oils µg/l	< 10	546	221	< 10	< 10.0	483	929	< 10.0
** DRO µg/l	< 10	2470	474	113	191	3670	803	322
Ammonia mg/l as N	15	12	119	28	55	3.16	28	23
Nitrate mg/l	0.99	< 0.2	0.59	0.35	7.7	< 0.2	< 0.2	< 0.2
Nitrite mg/l	< 0.02	< 0.02	< 0.02	< 0.02	0.44	< 0.02	< 0.02	< 0.02
* TKN mg/l	16.01	34	115.40	29.65	56.56	16	34	27
TON as N mg/l	0.99	< 0.2	0.6	0.35	0.44	< 0.2	< 0.2	< 0.2
* Total Nitrogen mg/l	17	34	116	30	57	16	34	27
* Total Phosphorous mg/l	0.17	3.78	1.41	0.32	0.84	2.88	0.84	0.46

* - Non INAB Accredited Method
** - Subcontracted Test
Note 1 – Surface water Discharge limit for Mineral Oil given as 5 mg/l as Per Schedule C of Waste Licence W194-02

6.5. Tank and Pipeline Testing & Inspection Reports

Condition 6.9 of the waste licence states:

The integrity and water tightness of all underground pipes, tanks, bunding structures and containers and their resistance to penetration by water or other materials carried or stored therein shall be tested and demonstrated by the licensee. This testing shall be carried out by the licensee at least once every three years and reported to the Agency on each occasion. This testing shall be carried out in accordance with any guidance published by the Agency. A written record of all integrity tests and any maintenance or remedial work arising from them shall be maintained by the licensee

The Bund Integrity test is due to be carried out in the 2010 reporting period.

6.6. Environmental Management Programme

The Environmental Management Program (EMP) form part of the Objectives and Targets for the facility, presented in Table 5.1 & 5.2. Specifically it is proposed for the coming year:

- To obtain ISO 14001 certification for the facility.
- To obtain OHSAS 18001 certification for the facility.
- To undertake an internal waste awareness campaign
- Raise awareness with contractors/visitors of the Environmental Policy on site
- Raising awareness to domestic customers on what can correctly go into the blue bin, by implementing a new label to demonstrate the appropriate material which may be put into this bin type.
- Restructuring of the domestic collection routes with the aim minimising the amount of waste collection trucks on the roads

7. SITE DEVELOPMENT/INFRASTRUCTURAL WORKS

7.1. Current Infrastructure in Place

The facility is currently licensed to accept a maximum of 99,000 tonnes of waste per annum (80,000 tonnes of Non-hazardous household waste, 3,000 tonnes of Non-hazardous industrial sludges, 5,000 tonnes of Hazardous waste (WEEE), 5,000 tonnes of C&D waste and 6,000 tonnes of Sewage sludge).

7.2. Site Development Works during 2009 & Proposed for 2010

An SEW was submitted to the EPA on the 20 November 2009 for approval. Subject to approval, it is proposed that these works will commence during the 2010 reporting period.

8. ENVIRONMENTAL LIABILITIES (FINANCIAL PROVISIONS)

The environmental liabilities are those considered to be restricted to the confines of the facility, therefore, any costs incurred in addressing same will be limited to the removal and safe disposal of the waste remaining on-site following an emergency event (e.g. fire or spillage event) or the decommissioning and closure of the site. Such environmental liabilities cover should account foe the cost of the clean up and removal of the maximum amount of waste that may be stored on-site at any given time.

AES and Bord na Mona (parent company) have arranged insurance to cover the liability arising from damage to property and injury to parties as a result of sudden an unforeseen environmental impairment. AES have insurance cover for "Business Interruption" and have adequate reserves for the cost of removing the maximum amount of waste that may be stored on-site at any given time and to ensure that said material is transported to an authorised and capable facility.

In the unlikely event of full decommissioning, financial reserves are available to allow a formal surrender of the licence ensuring that the inherent environmental safeguard associated with this regulatory process is activated.

9. INCIDENTS & COMPLAINTS

9.1. Complaints Summary

The facility had just one complaint the reporting period. This was in relation to a resident detecting an odour from Kyletalesha Transfer Station on Monday 12th Oct 09 at 3.45 pm. An odour assessment was carried out on 28th Oct 09 as part of our investigation.

9.2. Reported Incidents Summary

The facility had four Incidents during the reporting period.

1. Dust arising from traffic entering Kyletalesha site on 15 June 09. **Corrective Action:** Water bowzer to be used during dry weather and observed during nuisance monitoring

2. There was an exceedence in ammonia levels on 27 July 09. **Corrective Action:** Specified Engineering Works outlining upgrade to percolation system. (EPA notified on 16-10-09)

3. Surface Water Contamination exceedence licence limits on 25 July 09 in SW 1, 2, 3, 4, and 6. Corrective action: reduction in number of units loading and unloading at the same time. **Corrective Action:** Weekly Surface water monitoring program to monitor effected parameters. (EPA notified on 16-10-09)

4. Exceedence in Noise emissions on 23 September 09. **Corrective action:** reduction in number of units loading and unloading at the same time. (EPA notified on 16-10-09)

9.3. Accident Prevention and Emergency Response

Condition 9.1 of the waste licence states:

The licensee shall ensure that a documented Accident Prevention Procedure is in place which will address the hazards on-site, particularly in relation to the prevention of accidents with a possible impact on the environment. This procedure shall be reviewed annually and updated as necessary.

Condition 9.2 of the waste licence states:

The licensee shall maintain a documented Emergency Response Procedure for the facility, which shall address any emergency situation which may originate on-site. This Procedure shall include provision for minimising the effects of any emergency on the environment. This procedure shall be reviewed annually and updated as necessary.

The accident prevention and emergency response has been prepared for the following:

- EP-ERP-01_General Emergency Prepardness & Response.doc
- EP-ERP-02_Spill Clean Up Procedure.doc
- EP-ERP-03_Fire Explosion Procedure.doc
- EP-ERP-04_Malicious Damage Procedure.doc
- EP-ERP-05_Unforeseen Emergencies & Fugitive Emissions.doc

These documents are included in full in Appendix IV.

10. FACILITY MANAGEMENT

10.1. Management & Staffing Structure

The Management and staffing structure for the facility is presented in Table 10.1.

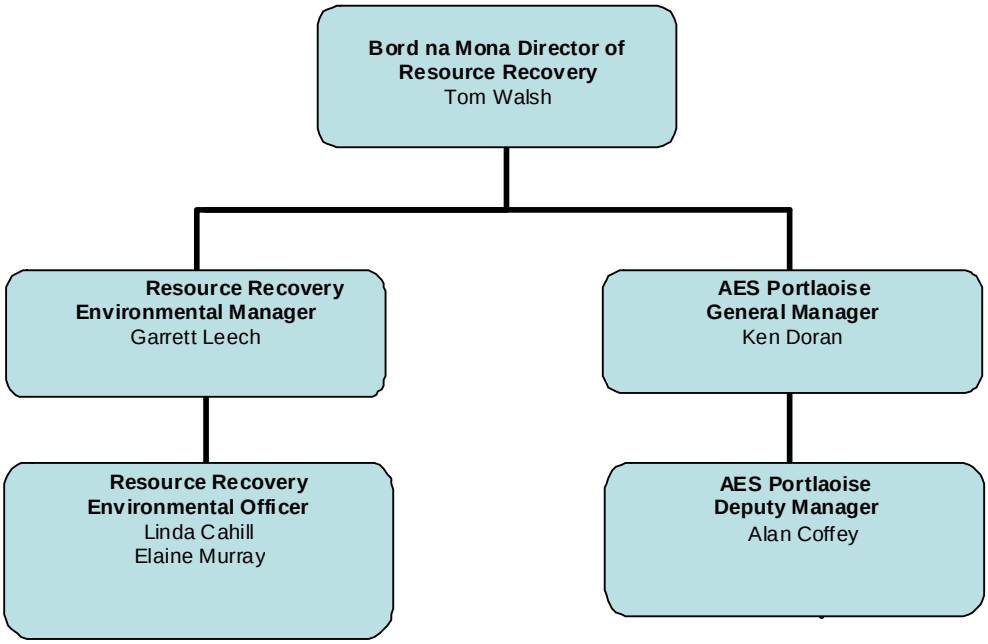


Figure 10.1: Environmental Organisation Structure

Appendix I

Drawings

Monitoring Locations

Surface water

ID	Northing	Easting
SW-1	245452	202502
SW-2	245487	202564
SW-6	245471	202543

Air/Dust

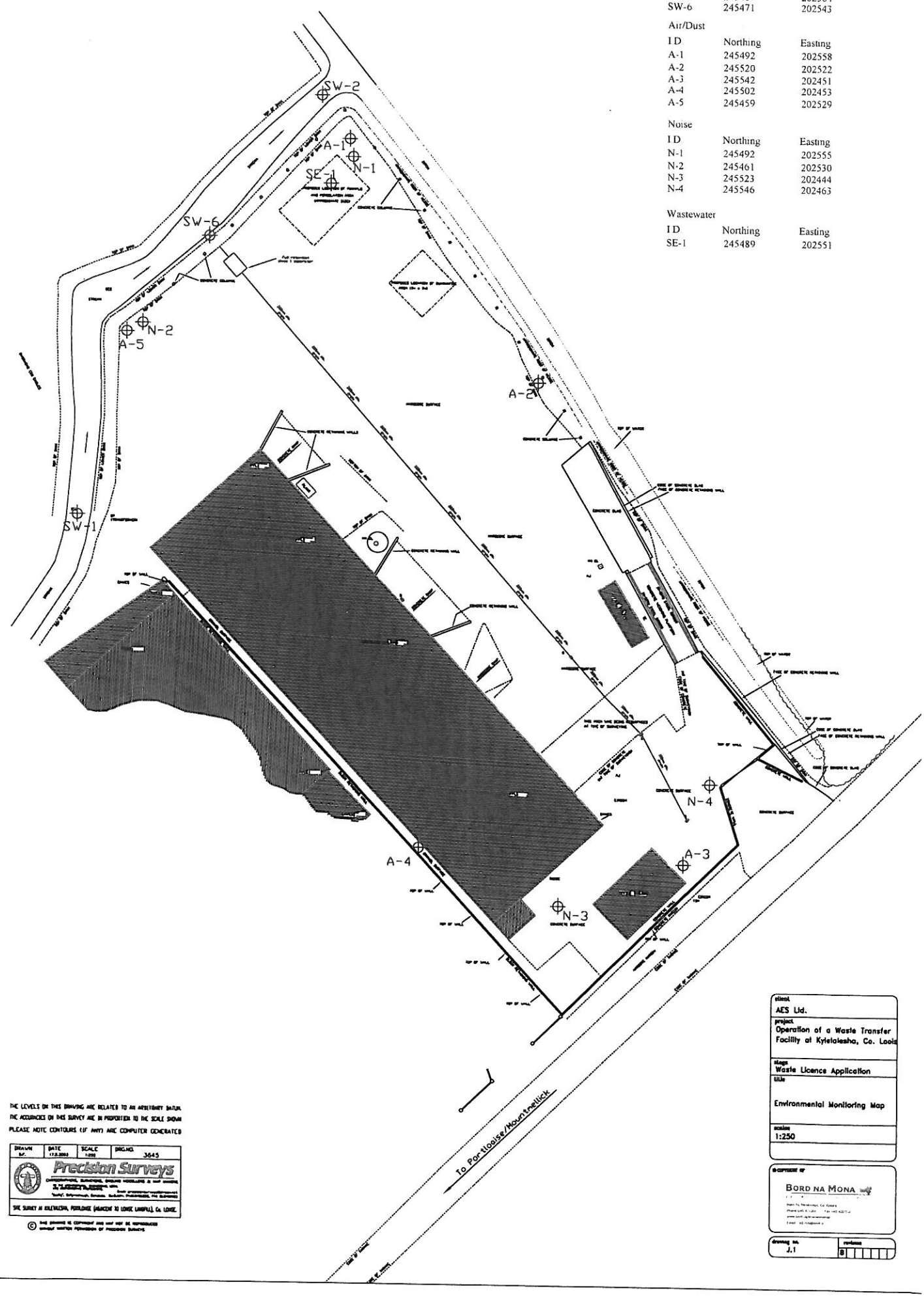
ID	Northing	Easting
A-1	245492	202558
A-2	245520	202522
A-3	245542	202451
A-4	245502	202453
A-5	245459	202529

Noise

ID	Northing	Easting
N-1	245492	202555
N-2	245461	202530
N-3	245523	202444
N-4	245546	202463

Wastewater

ID	Northing	Easting
SE-1	245489	202551



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		1250	3645

Precision Surveys

SITE SURVEY AT KYLELOESHA, PORTLOISE (ADJACENT TO LOWSE LANDFILL) Co. LOWSE.

client: AES Ltd.

project: Operation of a Waste Transfer Facility at Kylelaesha, Co. Laois

stage: Waste Licence Application

title: Environmental Monitoring Map

scales: 1:250

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drawing no. J.1

revision B

Appendix II

Monitoring Results

BORD NA MÓNA

BORD NA MÓNA ENVIRONMENTAL LIMITED

MONITORING OF AMBIENT NOISE LEVELS AT ADVANCED ENVIRONMENTAL SOLUTIONS LTD., WASTE MANAGEMENT FACILITY AT PORTLAOISE WASTE TRANFER FACILITY, KYLETALESHA, CO. LAOIS

REGISTRATION NO. W0194-02

For the Attention of:
Ms. Linda Cahill
Environmental Officer
Advanced Environmental Solutions (Ireland) Ltd.
Unit 1 Monread Road
Naas
Co.Kildare

Prepared by:
Mr. Eamonn Lee
Environmental Scientist

Reviewed by:
Mr. Peter Coogan
Monitoring Team Leader

Report No: **ECS3387- Noise**
Monitoring Date: **23-24th September 2009**
Report Date: **September 2009**

EXECUTIVE SUMMARY

In compliance with the requirements of their waste licence W0194-02, Advanced Environmental Solutions (AES) Ltd., is obliged to carry out annual noise monitoring at its facility at Kyletalesha, Co. Laois. AES Ltd. commissioned Bord na Móna Technical Services to conduct the noise monitoring survey for 2009. The site was subsequently visited by a Bord na Móna Environmental Scientist on the 23rd and 24th of September 2009, to conduct the monitoring program.

Noise levels were monitored at five monitoring locations: four boundary locations and one noise sensitive location. The LA_{eq} levels recorded at the four boundary locations were 58 dB(A), 59 dB(A), 60 dB(A) and 67dB(A) at the N1, N2, N3 and N4 monitoring locations respectively. The LA_{eq} recorded at the noise sensitive location N5 was 52dB (A).

The main sources of noise, within the facility, originated from trucks loading and unloading waste bins, machinery operating in the AES yard and recycling sheds and the intermittent beeping of reversing machinery. No tonal noise was detected from the boundary monitoring locations.

On the days of monitoring the site was extra busy due to the incoming waste generated at the national ploughing championships in Athy.

It should be noted that all boundary locations were monitored within the boundary walls. The facility is surrounded by; 10ft high mass concrete wall on the north west, south and south western boundaries. It can be reasonably assumed that these barriers will significantly reduce noise emissions to surrounding environs.

The dominant source of the noise detected at the noise sensitive location was passing traffic (tractors, trucks, vans and cars) on the Kyletalesha road. No tonal noise was detected at the Noise Sensitive Location and the LAeq was well within the EPA guideline limit. Noise created from the AES facility was occasionally faintly audible.

Respectively Submitted,

Mr. Peter Coogan
Monitoring Team Leader

Mr. Eamonn Lee
Environmental Scientist

TABLE OF CONTENTS

1.0 INTRODUCTION

In compliance with the requirements of their waste licence W0194-01, Advanced Environmental Solutions Ltd. (AES), is obliged to carry out noise monitoring at its facility in Kyletalesha, Co. Laois. AES commissioned Bord na Móna Technical Services to conduct the noise monitoring survey for 2009. The site was subsequently visited by a Bord na Móna Environmental Scientist on the 23rd and 24th of September 2009, to conduct the monitoring program. This report outlines the monitoring of day time noise (08:00 to 22:00) at four locations within the boundary of the waste management facility and one monitoring point at the nearest noise sensitive location. As the site does not operate overnight nigh-time noise was not recorded.

The main objectives of this noise monitoring program are:

(a) to determine ambient noise levels at four boundary locations at the site;

(b) to ensure the activities on-site shall not give rise to noise levels off site, at any noise sensitive location, which exceeds the following sound pressure limit:

Daytime 55 dB A

This report details the sampling and analytical methodologies employed and also includes a broad interpretation of the results obtained.

2.0 METHODOLOGY

2.1 Measurement Parameters

2.1.1 Leq Values

LA_{eq} (t) values represent the continuous equivalent sound level over a specified time (t) in the A weighted scale. This value expresses the average levels over time and is a linear integral.

2.1.2 LA_{Max} Values

The maximum RMS, A-Weighted sound pressure level occurring within a specified time period.

2.1.3 L_{90} and L_{10} Values

The L_{90} and L_{10} values represent the sound levels exceeded for a percentage of the instrument measuring time. L_{10} indicates that for 10% of the monitoring period, the sound levels were greater than the quoted value. L_{10} is a good statistical parameter for expressing event noise such as passing traffic. The L_{90} represents post event sound levels and is a good indicator of background noise levels.

2.2 Tonal and Impulsive Characteristics

For the purpose of this report, tonal noise is characterised in accordance with ISO 1996-2, which indicates that a noise source being tonal at a particular frequency is either clearly audible or exceeds the level of the adjacent bands by 5dB or more.

An impulsive noise is of short duration (typically less than one second), it is brief and abrupt, its' startling effect causes greater annoyance than would be expected from a simple measurement of sound pressure level. For example an instantaneous bang/thud that maybe associated with pile driving, hammering etc.

2.3 Standards and Guidance

The acoustic assessment and subsequent report are in accordance with International Standard Organisation (ISO) 1996 Acoustics – Description and Measurement of Environmental Noise Part 1, 2, and 3 in addition to the Environmental Protection Agency Environmental Noise Survey Guidance Document.

2.4 Site information

2.4.1 All measurements were taken at 1.2 -1.5 m height above local ground level and at least 3.5m away from reflective surfaces other than the ground.

2.4.2 The weather was dry, calm and overcast, with a wind speed of <5ms/sec at the time of the assessment.

2.4.3 Table 2.1 describes the locations of the monitoring positions for the noise monitoring.

2.4.4 All noise measurements were sampled for the time period of 30 minutes.

Table 2.1 Sampling Locations

TABLE 2.1 : LOCATION OF NOISE MONITORING MEASUREMENTS		
Map Reference No.	**Location Type**	**Location**
N1	Boundary	North East corner of site, directly beside the dust gauge.
N2	Boundary	North West corner of site, directly beside the dust gauge.
N3	Boundary	South West corner of site, beside the portacabin.
N4	Boundary	South East corner of site, to the right of the entrance gate.
N5	Noise Sensitive Location	Private dwelling (Approx. 500m East of site).

3.0 INSTRUMENTATION EQUIPMENT USED

The following equipment was employed during the acoustic assessment on the 23rd and 24th of September 2009.

Bruel & Kjaer Real-Time Noise Analyzer Type 2260 Observer with Sound Analysis Software BZ 7210:
Model No: 2260
Serial No. 2418359
Date of Certificate and Calibration: 19th of February 2008

Microphone Type: B&K 4936
Serial No: 2417709
Date of Certificate and Calibration: 19th of February 2009
Tripod

- Certified current annual calibration certificates are available for the meter upon request.

On Site Calibration.

The instrument was calibrated immediately before and after the measurement periods with no drift in calibration level noted.

4.0 RESULTS

Table 4.1 presents the results of the noise monitoring survey carried out at the AES Waste Management Facility in Kyletalesha, Portlaoise, during normal day time activities.

TABLE 4.1: NOISE MEASUREMENT RESULTS 23rd September 2009						
Location No.	Measurement Period (minutes)	Time	LA_{eq} dB(A)	L_{10} dB(A)	L_{90} dB(A)	L_{AFMax} dB(A)
N1	30	15:11 – 15:41	58	60	53	73
N2	30	15:44 – 16:14	59	62	52	80
N3	30	16:17 – 16:48	60 Note 1	62	49	82
N4	30	16:50 – 17:51	67	69	65	81
NOISE MEASUREMENT RESULTS 23rd September 2009						
N5 (NSL)	30	09:18 – 09:52	52	54	40	72

Note 1; as this is not a free field measurement a correction factor of -3 dB (A) may be applied resulting in 57 dB (A).

5.0 DISCUSSION

Noise monitoring was undertaken at 4 boundary locations and 1 noise sensitive location at the AES facility in Kyletalesha, Co. Laois. Monitoring of the noise emissions was carried out in compliance with the requirements of the EPA Waste Licence W0194-02.

Noise emissions arising from normal site operations should not result in exceedence of the noise limit of 55 dB (A) stipulated for day-time at the nearest noise sensitive location.

Table 4.1 presents daytime noise measurements undertaken on the 23rd and 24th of August 2009 at the five monitoring locations.

Daytime Noise Measurements

Boundary Locations:

N1 is located at the north east corner of the site beside the Puraflo system. The LA_{eq} level recorded at N1 was 58 dB (A), which is slightly above the EPA guideline limit. Results of noise monitoring will show that for 90% of the survey the LA_{eq} level recorded was 53 dB (A). The L_{10} value of 60 dB(A) would indicate random loud bangs from the loading and unloading of waste bins, which would have increased the average LA_{eq} level throughout the 30min monitoring period. The main sources of noise evident at this location include trucks loading and offloading waste bins in the yard, machinery (loading shovels) operating in the yard and noise from the screeners used in the segregation of waste, emanating from the recycling sheds. No tonal noise was detected at this monitoring location.

N2

N2 is located on the North West corner of the site. The LA_{eq} level recorded at N2 was 59 dB (A). This slight exceedance of the upper EPA guideline (4dB) limit may be attributed to increased sound pressure levels originating from recycling equipment operating within the shed, intermittent beeping of reversing machinery, the sound of waste being loaded into the screeners by loading shovels and trucks loading and offloading waste bins in the yard. The L_{10} value of 62 dB (A) would suggest that random loud bangs, trammel sirens etc. would have increased the average LA_{eq} level. No tonal noise was detected at this monitoring location.

N3

N3 is located on the southern corner of the site beside the portacabins. The LA_{eq} level at N3 was 60 dB (A). This value exceeds the upper EPA guideline limit by five decibels. The close proximity of the noise meter to the recycling shed would mean that noise levels were strongly influenced by activities within the shed. Due to space confinements in the South East corner of the site there was not enough space to position the noise meter >3.5 meters from reflective surfaces. As the position of the noise monitor was <3.5 meters from a reflective surface the resulting sound pressure level recorded may be treated as a non-free field measurement. For this reason a correction factor of -3 dB (A) may be applied resulting in a more representative sound pressure level of 57 dB (A). This result is still slightly above the upper EPA guideline limit. Sources of noise that were continuous through out the 30min monitoring period include screening machines operating within the recycling shed and a generator running close by. Intermittent sources of noise include the intermittent beeping of reversing machinery, loading shovels operating in the yard and shed, traffic passing on the Kyletalesha road and the sound of an alert siren from within the shed for a few seconds. No tonal noise was detected at this monitoring location.

N4

N4 is located at the south west corner of the site, to the right of the entrance gate. The LA_{eq} level recorded at N4 was 67 dB (A). The significantly high L_{90} value of 65 dB (A) would indicated that noise levels were considerably influenced by constant noise sources at this location. The close proximity of this monitoring location to a diesel generator (12m) that was in constant operation would have lead to this significantly high L90 result and in turn contributed to the elevated LAeq result. Other noise sources include trucks parked on weigh-bridge with engines running, traffic entering and exiting the AES facility(4m), the emptying of waste bins, screeners operating within the recycling shed, the intermittent beeping of reversing machinery operating in yard and traffic passing on the Kyletalesha road (10m audible but not visible). No tonal noise was detected at this monitoring location.

Noise Sensitive Location (N5):

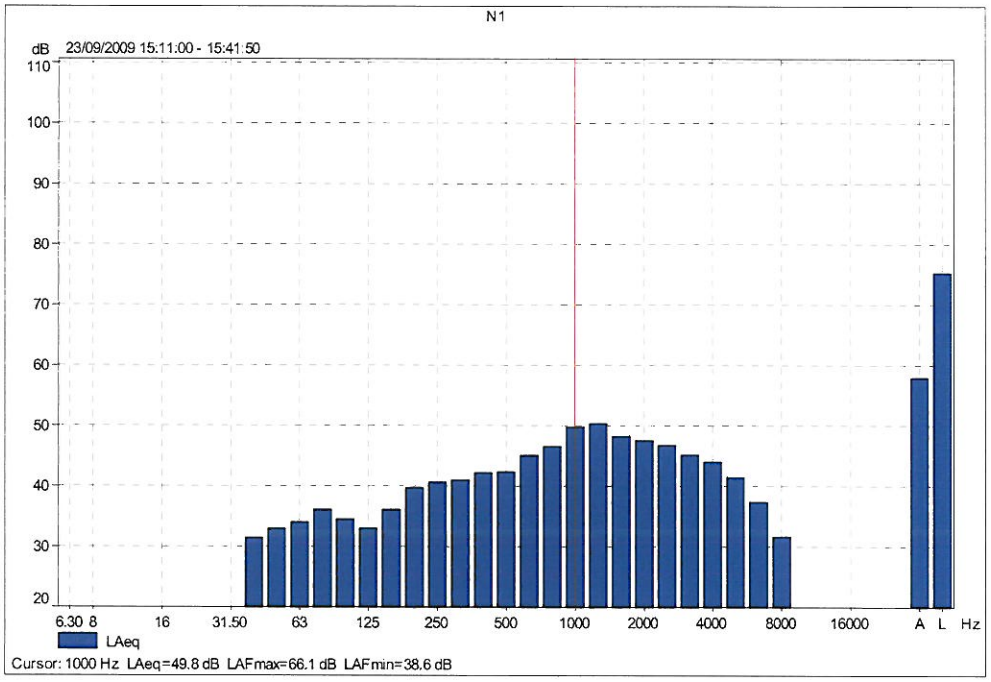
The LA_{eq} level detected at the noise sensitive location (N5) was 52 dB (A), which is well within the EPA guideline limit of 55 dB (A). N5 is situated on the lawn of the nearest private dwelling to the East of the AES facility (a distance of approximately 500 meters). It was noted that activities were for the most part not audible at this location (only occasional reversing alarms faintly audible). The predominant source of noise from this location was the passing of traffic on the Kyletaleshal road during the 30 min monitoring period, (including; 12 cars, 2 vans, 2 lorries and 7 jeeps).
No tonal noise was detected at this monitoring location.

Appendix 1

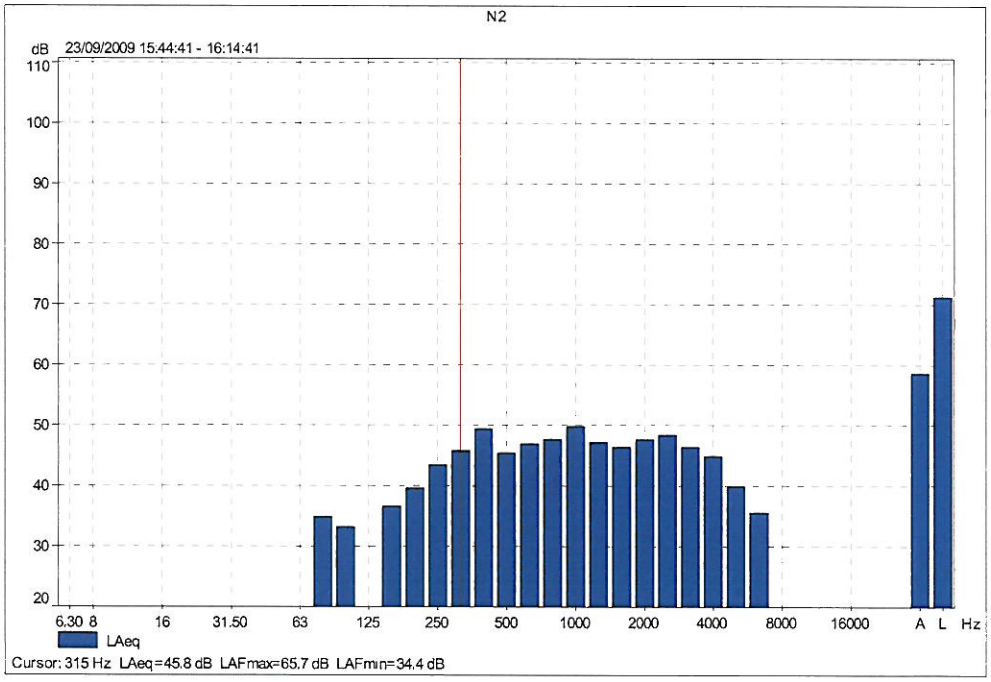
$^1/_3$ Octave Tonal Graphs

N1 $^{1}/_{3}$ Octave Tonal Graphs

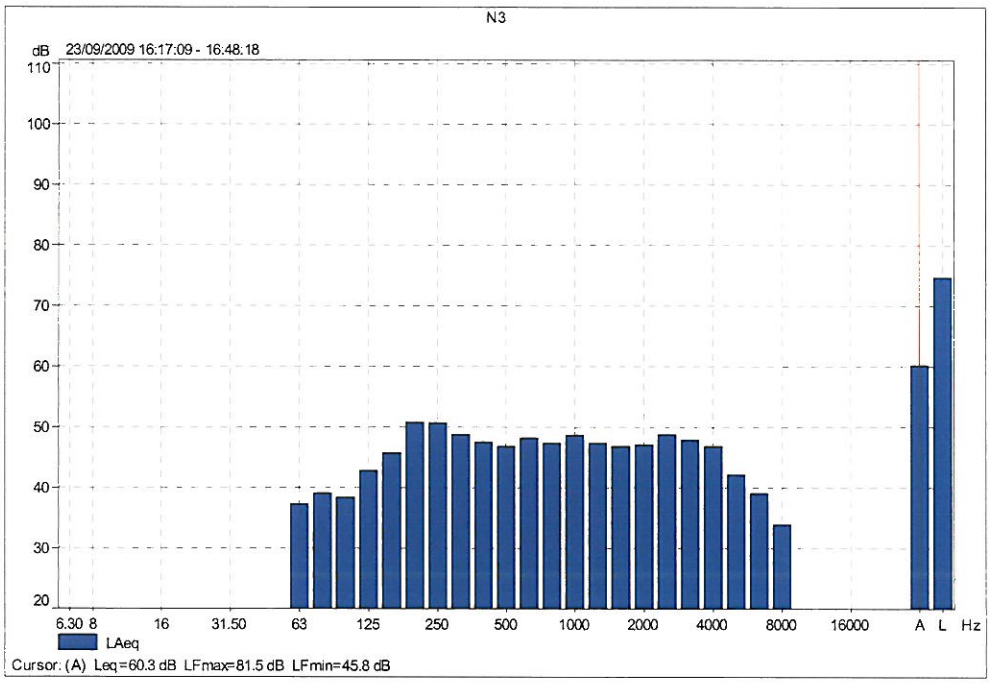
N1



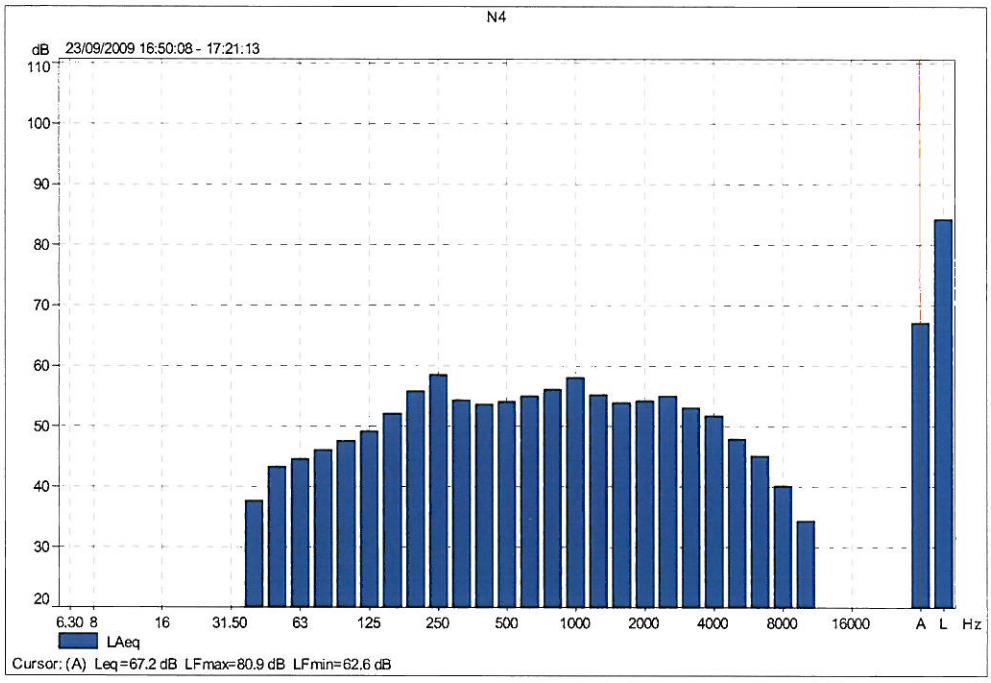
N2



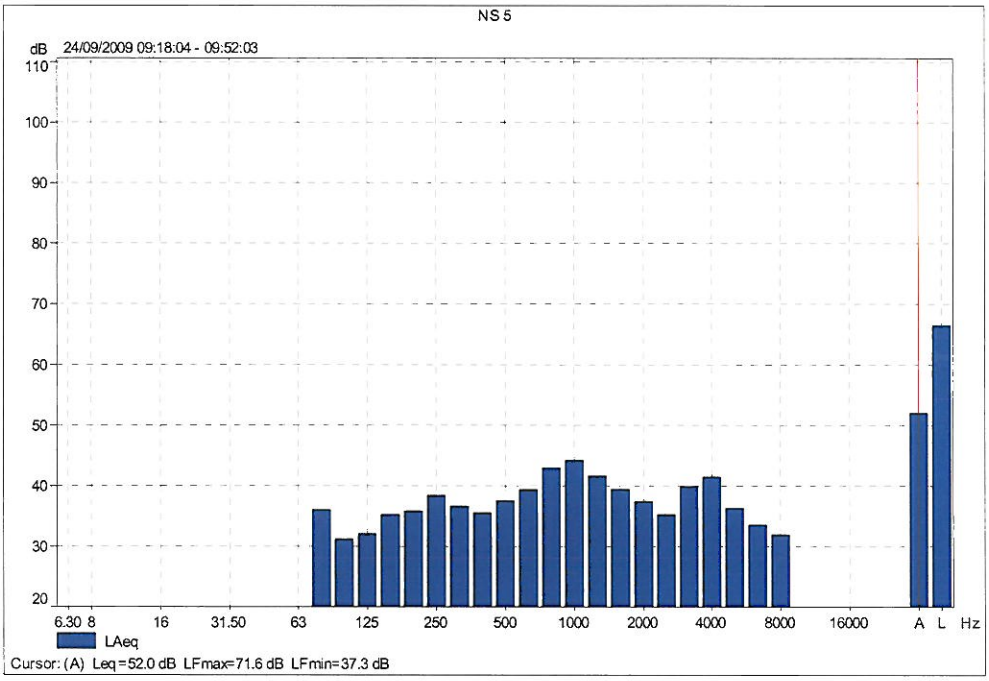
N3


N3
dB 23/09/2009 16:17:09 - 16:48:18
110
100
90
80
70
60
50
40
30
20
6.30 8
16
31.50
63
125
250
500
1000
2000
4000
8000
16000
A L Hz
LAeq
Cursor: (A) Leq=60.3 dB LFmax=81.5 dB LFmin=45.8 dB

N4


N4
dB 23/09/2009 16:50:08 - 17:21:13
110
100
90
80
70
60
50
40
30
20
6.30 8
16
31.50
63
125
250
500
1000
2000
4000
8000
16000
A L Hz
LAeq
Cursor: (A) Leq=67.2 dB LFmax=80.9 dB LFmin=62.6 dB

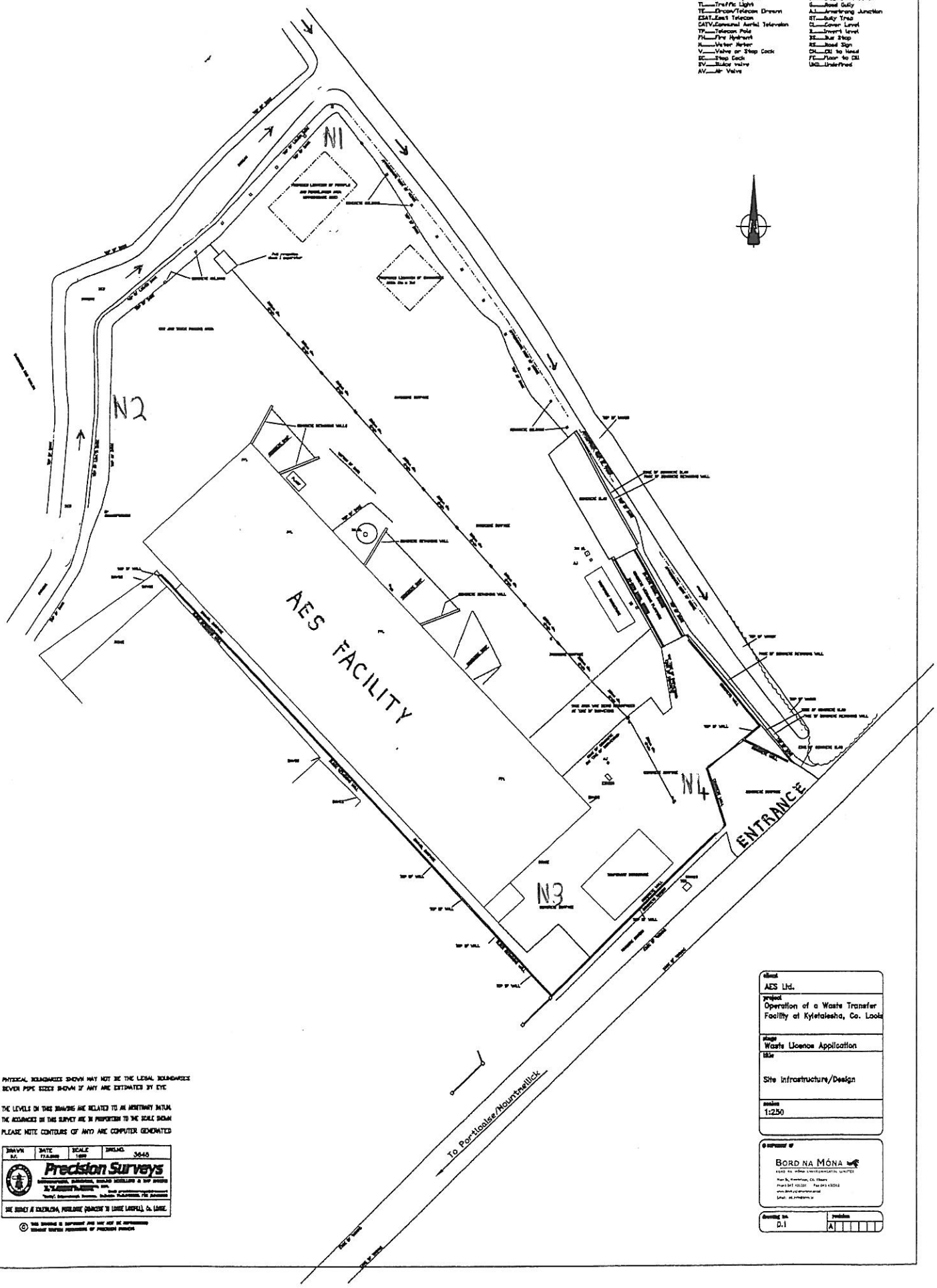
N5 $^{1}/_{3}$ Octave Tonal Graphs



Tonal Noise was not detected at the Noise Sensitive Location

Appendix 2

Map of Monitoring Locations



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Precision Surveys

SITE BOUNDARY AT KYLETALESHA, PORTLAOISE (EXTENSION TO LANDFILL), Co. LAOIS.

client: AES Ltd.

project: Operation of a Waste Transfer Facility at Kyletalesha, Co. Laois

stage: Waste Licence Application

title: Site Infrastructure/Design

scales: 1:250

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drawing no. D.1

revision A

DUST DEPOSITION MONITORING AT THE ADVANCED ENVIRONMENTAL SOLUTIONS (IRELAND) LTD. SITE AT PORTLAOISE, CO. LAOIS IN ACCORDANCE WITH WASTE LICENCE REGISTER NO. W0194-02

For the Attention of:
Ms. Linda Cahill
Environmental Officer
Advanced Environmental Solutions (Ireland) Ltd.
Unit 1 Monread Commercial Park
Monread Road
Naas
Co. Kildare

Prepared by:
Mr. Peter Coogan
Monitoring Team Leader

Reviewed by:
Mr. Ronan Connolly
Environmental Scientist

Report No:	ECS3268-Dust
Monitoring period:	May/June 2009
Report Date:	July 2009

Executive Summary / Certification of Results

Bord na Móna Technical services was commissioned by Portlaoise Advanced Environmental Solutions Ltd. (AES) to conduct dust deposition monitoring at selected locations within their facility in accordance with the company's Waste Licence (Register No. W0194-02) sampling programme.

Bergerhoff gauges were installed on the 14th of May 2009 for a 32 day exposure period before being collected on the 15th of June 2009. The dust samples were returned to the laboratory for subsequent analysis.

The results of the dust survey show that levels of dust recorded at the D1 monitoring location exceeded the dust deposition limit of 350mg/m^2/day as per schedule D2 of the Waste Licence. All other monitoring locations were within the dust deposition limit of 350mg/m^2/day.

This report is certified as accurate and representative of the sampling and associated analysis carried out.

Respectively Submitted,

Mr. Peter Coogan
Monitoring Team Leader

Mr. Ronan Connolly
Environmental Scientist

TABLE OF CONTENTS

1.0 INTRODUCTION

In compliance with the requirements of their Waste Licence, Register No. W0194-02 (Schedule D.2), AES Ltd is required to monitor dust deposition from their facility at Portlaoise, Co. Laois three times per year. Dust deposition monitoring is carried out according to the German Standard method VD I2119 (Bergerhoff). This report presents the results for the first dust monitoring survey of 2009.

Bord na Móna Technical Services was commissioned to perform the sampling and analysis. The site was visited by a Bord na Móna Environmental Scientist on the 14th of May 2009 to install the dust gauges at selected locations in accordance with the licence. The dust gauges were collected 32 days later on the 15th of June and returned to the laboratory for analysis.

This report details the sampling and analytical methodologies adopted.

2.0 METHODOLOGY

2.1 Dust Monitoring Locations

Dust deposition samples were taken at three locations within the site boundary. Table 2.1 below describes the sampling locations which are also marked on the map contained in Appendix 1.

TABLE 2.1: LOCATION OF DUST MONITORING POSITIONS

Sample Name	Location
D1	South eastern corner of the facility
D2	North western corner of facility
D4	Northern corner of the facility

2.2 Sampling

2.2.1 Dust Deposition

The Bergerhoff Dust Deposition Gauges used for this sampling survey consist of a plastic collecting vessel and a stand with a protective cage. Each vessel was placed in the metal basket which was positioned at a height of between 1.5 and 2 meters above ground level according to the German Standard Method VDI 2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute).

Prior to sampling, the collecting vessels were carefully cleaned with laboratory detergent, rinsed with deionised water and allowed to dry. Following exposure, the sample bottles were securely capped and returned to the laboratory for analysis.

2.3 Analysis

All samples returned to the laboratory were stored at 2-8°C. Subsequent analysis of all samples was carried out gravimetrically for dust and strictly followed the standard VDI 2119. The results were expressed in $mg/m^2/day$.

3.0 ACCREDITED QUALITY SYSTEM

3.1 INAB Accreditation

Bord na Móna Technical Services analytical laboratories is accredited to ISO 17025 by the National Accreditation Board (INAB). ISO 17025 accreditation ensures that the laboratory operates a quality system with technically competent staff. The laboratory has accreditation since 1997 and it is the policy of the laboratory to achieve and maintain a high standard of quality consistent with client's requirements in all aspects of the work carried out within the laboratory.

3.2 Interlaboratory Proficiency Schemes

To ensure the accuracy of the analytical testing the laboratory participates in several external proficiency schemes. The ongoing competence of the laboratory and its staff is assessed by participation in various inter-laboratory proficiency testing schemes, such as LGC Aquacheck scheme and the EPA Intercalibration programme organised for environmental laboratories throughout Ireland. Bord na Móna Technical & Laboratory Services Analytical Laboratory is listed on the EPA's register of Quality Controlled Laboratories

3.3 Control Chain of Custody

As part of the Quality System in place at Bord na Móna Technical Services, measures are taken to ensure controlled chain of custody. An outline of the chain of custody is given below.

BORD NA MÓNA

CONTROLLED CHAIN OF CUSTODY

SITE		TRANSPORT		LABORATORY
Sampling and packaging of all samples were carried out by Bord na Móna Technical Team: Mr. Peter Coogan	Transport Document Form →	Transport to laboratory by Bord na Móna Technical Team.	Sample Reception Form →	Receiving of samples at Bord na Móna Environmental Laboratory complex by: Laboratory Manager (Secure laboratory complex access to authorised personnel only) ↓ Storage of all samples for 1 month period after report issue. ↓ Supervised Disposal

4.0 RESULTS

Table 4.1 below presents the results of the dust deposition monitoring at the AES facility in Portlaoise, Co. Laois.

TABLE 4.1: RESULTS OF DUST DEPOSITION

Sample Name	Deposition Rate ($mg/m^2/day$)	*Waste Licence Dust Deposition Limit ($mg/m^2/day$)*
D1	510	*350*
D2	179	*350*
D4	200	*350*

5.0 COMMENT

The results of the dust deposition survey which was carried out between the 14th of May and the 15th of June 2009 (32 days) at the AES facility are presented in Table 4.1.

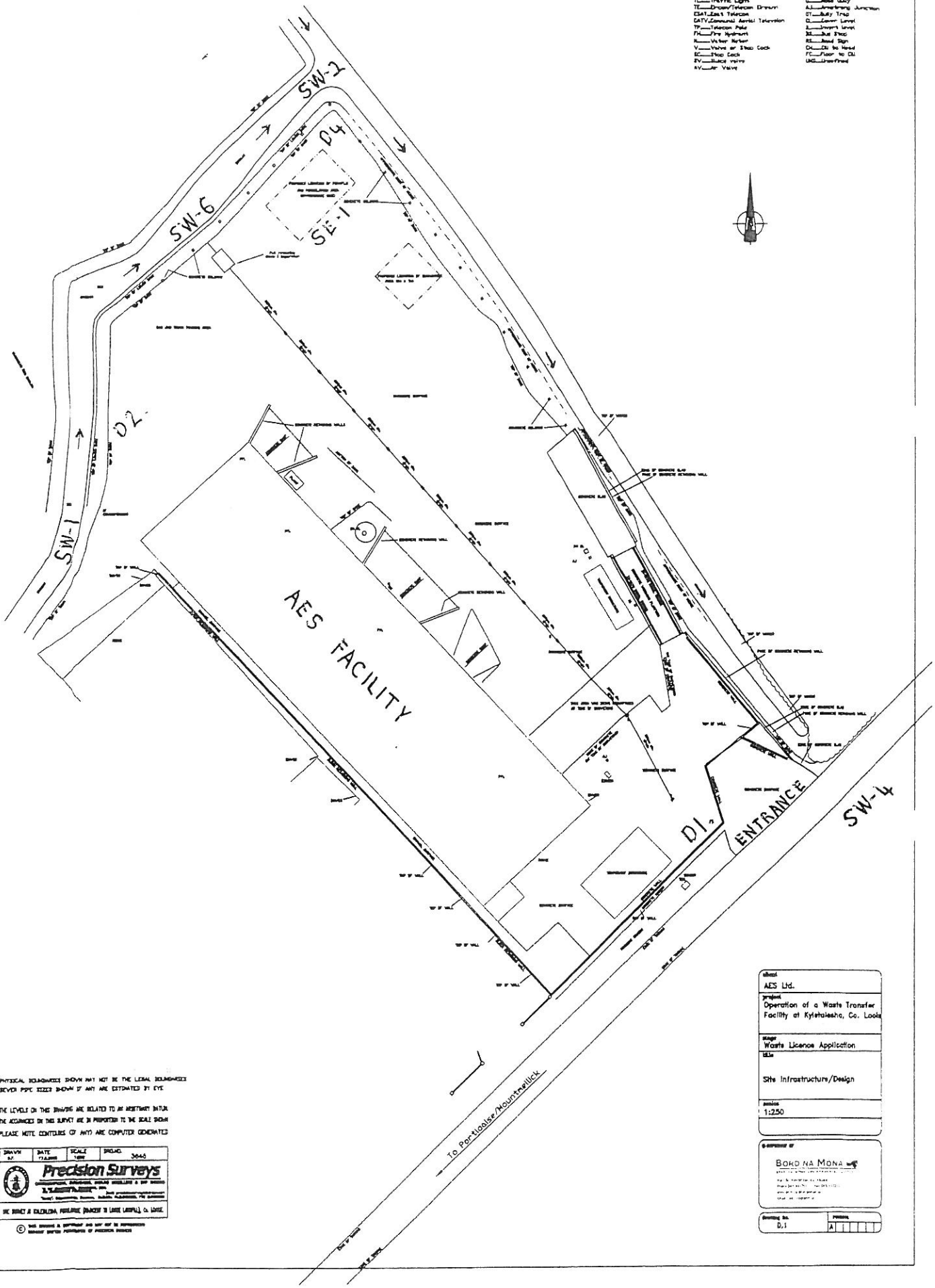
The Waste Licence limit for dust deposition is given as $350mg/m^2/day$ as per Schedule D.2 of Waste Licence W0194-02.

The results of the survey indicate that dust levels at the D1 ($510mg/m^2/day$) monitoring location exceeded the dust limit of $350mg/m^2/day$. D1 is located at the entrance gate to the AES facility. It is considered that dust arising from both AES vehicles and other traffic as they pass over the gravel situated on the edge of the main Kyletalesha road outside the AES facility is contributing to elevated dust levels at D1.

The remainder dust gauges D2 and D4 at the back of the site were below the dust deposition limit.

APPENDIX 1

Map of Dust Monitoring Locations



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DRAWN BY	DATE	SCALE	DRG.NO.
			3646

Precision Surveys

SITE SURVEY @ KYLETALESHA, PORTLAOISE (EXTENSION TO LANDFILL) Co. LAOIS.

client
AES Ltd.

project
Operation of a Waste Transfer Facility at Kyletaleshe, Co. Laois

stage
Waste Licence Application

title
Site Infrastructure/Design

scales
1:250

BORD NA MONA

drawing no.
D.1

revision
A

BORD NA MÓNA

BORD NA MÓNA ENVIRONMENTAL LIMITED

DUST DEPOSITION MONITORING AT THE ADVANCED ENVIRONMENTAL SOLUTIONS (IRELAND) LTD. SITE AT PORTLAOISE, CO. LAOIS IN ACCORDANCE WITH WASTE LICENCE REGISTER NO. W0194-02

For the Attention of:
Ms. Linda Cahill
Environmental Officer
Advanced Environmental Solutions (Ireland) Ltd.
Unit 1 Monread Commercial Park
Monread Road
Naas
Co. Kildare

Prepared by:
Mr. Eamonn Lee
Monitoring Team Leader

Reviewed by:
Mr. Peter Coogan
Monitoring Team Leader

Report No: ECS3473-Dust
Monitoring period: October/November 2009
Report Date: December 2009

Executive Summary / Certification of Results

Bord na Móna Technical services was commissioned by Portlaoise Advanced Environmental Solutions Ltd. (AES) to conduct dust deposition monitoring at selected locations within their facility in accordance with the company's Waste Licence (Register No. W0194-02) sampling programme.

Bergerhoff gauges were installed on the 27th of October 2009 for a 30 day exposure period before being collected on the 26th of November 2009. The dust samples were returned to the laboratory for subsequent analysis.

The results of the survey indicate that dust levels at all sampling locations are within the limit value of 350mg/m^2/day.

This report is certified as accurate and representative of the sampling and associated analysis carried out.

Respectively Submitted,

Mr. Eamonn Lee
Environmental Scientist

Mr. Peter Coogan
Monitoring Team Leader

TABLE OF CONTENTS

1.0 INTRODUCTION

In compliance with the requirements of their Waste Licence, Register No. W0194-02 (Schedule D.2), AES Ltd is required to monitor dust deposition from their facility at Portlaoise, Co. Laois three times per year. Dust deposition monitoring is carried out according to the German Standard method VD I2119 (Bergerhoff). This report presents the results for the third dust monitoring survey of 2009.

Bord na Móna Technical Services was commissioned to perform the sampling and analysis. The site was visited by a Bord na Móna Environmental Scientist on the 27th of October 2009 to install the dust gauges at selected locations in accordance with the licence. The dust gauges were collected 30 days later on the 26th of November and returned to the laboratory for analysis.

This report details the sampling and analytical methodologies adopted.

2.0 METHODOLOGY

2.1 Dust Monitoring Locations

Dust deposition samples were taken at three locations within the site boundary. Table 2.1 below describes the sampling locations which are also marked on the map contained in Appendix 1.

TABLE 2.1: LOCATION OF DUST MONITORING POSITIONS

Sample Name	Location
D1	South eastern corner of the facility
D2	North western corner of facility
D4	Northern corner of the facility

2.2 Sampling

2.2.1 Dust Deposition

The Bergerhoff Dust Deposition Gauges used for this sampling survey consist of a plastic collecting vessel and a stand with a protective cage. Each vessel was placed in the metal basket which was positioned at a height of between 1.5 and 2 meters above ground level according to the German Standard Method VDI 2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute).

Prior to sampling, the collecting vessels were carefully cleaned with laboratory detergent, rinsed with deionised water and allowed to dry. Following exposure, the sample bottles were securely capped and returned to the laboratory for analysis.

2.3 Analysis

All samples returned to the laboratory were stored at 2-8°C. Subsequent analysis of all samples was carried out gravimetrically for dust and strictly followed the standard VDI 2119. The results were expressed in $mg/m^2/day$.

3.0 ACCREDITED QUALITY SYSTEM

3.1 INAB Accreditation

Bord na Móna Technical Services analytical laboratories is accredited to ISO 17025 by the National Accreditation Board (INAB). ISO 17025 accreditation ensures that the laboratory operates a quality system with technically competent staff. The laboratory has accreditation since 1997 and it is the policy of the laboratory to achieve and maintain a high standard of quality consistent with client's requirements in all aspects of the work carried out within the laboratory.

3.2 Interlaboratory Proficiency Schemes

To ensure the accuracy of the analytical testing the laboratory participates in several external proficiency schemes. The ongoing competence of the laboratory and its staff is assessed by participation in various inter-laboratory proficiency testing schemes, such as LGC Aquacheck scheme and the EPA Intercalibration programme organised for environmental laboratories throughout Ireland. Bord na Móna Technical & Laboratory Services Analytical Laboratory is listed on the EPA's register of Quality Controlled Laboratories

3.3 Control Chain of Custody

As part of the Quality System in place at Bord na Móna Technical Services, measures are taken to ensure controlled chain of custody. An outline of the chain of custody is given below.

BORD NA MÓNA

CONTROLLED CHAIN OF CUSTODY

SITE		TRANSPORT		LABORATORY
Sampling and packaging of all samples were carried out by Bord na Móna Technical Team: Mr. Eamonn Lee	Transport Document Form →	Transport to laboratory by Bord na Móna Technical Team.	Sample Reception Form →	Receiving of samples at Bord na Móna Environmental Laboratory complex by: Laboratory Manager (Secure laboratory complex access to authorised personnel only) ↓ Storage of all samples for 1 month period after report issue. ↓ Supervised Disposal

4.0 RESULTS

Table 4.1 below presents the results of the dust deposition monitoring at the AES facility in Portlaoise, Co. Laois.

TABLE 4.1: RESULTS OF DUST DEPOSITION		
Sample Name	Deposition Rate ($mg/m^2/day$)	*Waste Licence Dust Deposition Limit ($mg/m^2/day$)*
D1	39	*350*
D2	34	*350*
D4	45	*350*

5.0 COMMENT

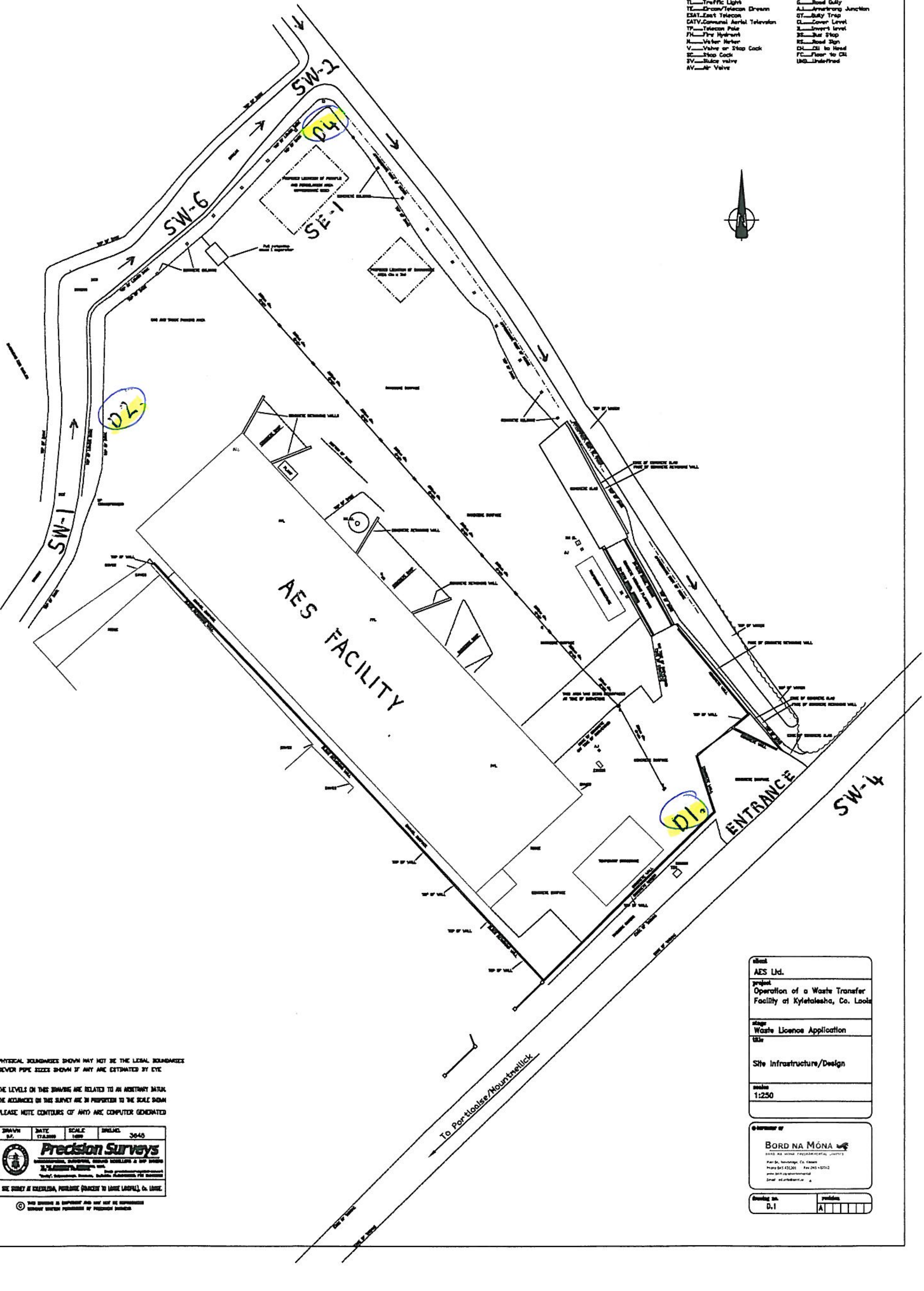
The results of the dust deposition survey which was carried out between the 27th of October and the 26th of November 2009 (30 days) at the AES facility are presented in Table 4.1.

The Waste Licence limit for dust deposition is given as $350mg/m^2/day$ as per Schedule D.2 of Waste Licence W0194-02.

The results of the survey indicate that dust levels at all sampling locations are within the limit value of $350mg/m^2/day$.

APPENDIX 1

Map of Dust Monitoring Locations



LEGEND

ESB—Electricity Supply Board
LS—Lamp Standard
EP—Electricity Pole
TL—Traffic Light
TE—Eircom/Telecom Eireann
ESAT—Esat Telecom
CATV—Communal Aerial Television
TP—Telecom Pole
FH—Fire Hydrant
M—Water Meter
V—Valve or Stop Cock
SC—Stop Cock
SV—Sluice valve
AV—Air Valve
MH—Manhole
IC—Inspection Cover
G—Road Gully
A.J.—Armstrong Junction
GT—Gully Trap
CL—Cover Level
IL—Invert level
BS—Bus Stop
RS—Road Sign
CH—Cill to Head
FC—Floor to Cill
UND—Undefined

PHYSICAL BOUNDARIES SHOWN MAY NOT BE THE LEGAL BOUNDARIES
SEWER PIPE SIZES SHOWN IF ANY ARE ESTIMATED BY EYE

THE LEVELS ON THIS DRAWING ARE RELATED TO AN ARBITRARY DATUM.
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DRAWN	DATE	SCALE	DRG.NO.
B.F.	17.8.2000	1:250	3648

Precision Surveys

SITE SURVEY AT KYLETALESHA, PORTLAOISE (ADJACENT TO LAOIS LANDFILL), Co. LAOIS.

client
AES Ltd.

project
Operation of a Waste Transfer Facility at Kyletalesha, Co. Laois

stage
Waste Licence Application

title
Site Infrastructure/Design

scales
1:250

BORD NA MÓNA

drawing no.
D.1

revision
A

BORD NA MÓNA

BORD NA MÓNA ENVIRONMENTAL LIMITED

DUST DEPOSITION MONITORING AT THE ADVANCED ENVIRONMENTAL SOLUTIONS (IRELAND) LTD. SITE AT PORTLAOISE, CO. LAOIS IN ACCORDANCE WITH WASTE LICENCE REGISTER NO. W0194-02

For the Attention of:
Ms. Linda Cahill
Environmental Officer
Advanced Environmental Solutions (Ireland) Ltd.
Unit 1 Monread Commercial Park
Monread Road
Naas
Co. Kildare

Prepared by:
Mr. Peter Coogan
Monitoring Team Leader

Reviewed by:
Mr. Ronan Connolly
Environmental Scientist

Report No: ECS3387-Dust
Monitoring period: July/August 2009
Report Date: September 2009

Executive Summary / Certification of Results

Bord na Móna Technical services was commissioned by Portlaoise Advanced Environmental Solutions Ltd. (AES) to conduct dust deposition monitoring at selected locations within their facility in accordance with the company's Waste Licence (Register No. W0194-02) sampling programme.

Bergerhoff gauges were installed on the 29th of July 2009 for a 28 day exposure period before being collected on the 26th of August 2009. The dust samples were returned to the laboratory for subsequent analysis.

The results of the survey indicate that dust levels at all sampling locations are within the limit value of 350mg/m^2/day.

This report is certified as accurate and representative of the sampling and associated analysis carried out.

Respectively Submitted,

Mr. Peter Coogan
Monitoring Team Leader

Mr. Ronan Connolly
Environmental Scientist

TABLE OF CONTENTS

1.0 INTRODUCTION

In compliance with the requirements of their Waste Licence, Register No. W0194-02 (Schedule D.2), AES Ltd is required to monitor dust deposition from their facility at Portlaoise, Co. Laois three times per year. Dust deposition monitoring is carried out according to the German Standard method VD I2119 (Bergerhoff). This report presents the results for the second dust monitoring survey of 2009.

Bord na Móna Technical Services was commissioned to perform the sampling and analysis. The site was visited by a Bord na Móna Environmental Scientist on the 29th of July 2009 to install the dust gauges at selected locations in accordance with the licence. The dust gauges were collected 28 days later on the 26th of August and returned to the laboratory for analysis.

This report details the sampling and analytical methodologies adopted.

2.0 METHODOLOGY

2.1 Dust Monitoring Locations

Dust deposition samples were taken at three locations within the site boundary. Table 2.1 below describes the sampling locations which are also marked on the map contained in Appendix 1.

TABLE 2.1: LOCATION OF DUST MONITORING POSITIONS

Sample Name	Location
D1	South eastern corner of the facility
D2	North western corner of facility
D4	Northern corner of the facility

2.2 Sampling

2.2.1 Dust Deposition

The Bergerhoff Dust Deposition Gauges used for this sampling survey consist of a plastic collecting vessel and a stand with a protective cage. Each vessel was placed in the metal basket which was positioned at a height of between 1.5 and 2 meters above ground level according to the German Standard Method VDI 2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute).

Prior to sampling, the collecting vessels were carefully cleaned with laboratory detergent, rinsed with deionised water and allowed to dry. Following exposure, the sample bottles were securely capped and returned to the laboratory for analysis.

2.3 Analysis

All samples returned to the laboratory were stored at 2-8°C. Subsequent analysis of all samples was carried out gravimetrically for dust and strictly followed the standard VDI 2119. The results were expressed in $mg/m^2/day$.

3.0 ACCREDITED QUALITY SYSTEM

3.1 INAB Accreditation

Bord na Móna Technical Services analytical laboratories is accredited to ISO 17025 by the National Accreditation Board (INAB). ISO 17025 accreditation ensures that the laboratory operates a quality system with technically competent staff. The laboratory has accreditation since 1997 and it is the policy of the laboratory to achieve and maintain a high standard of quality consistent with client's requirements in all aspects of the work carried out within the laboratory.

3.2 Interlaboratory Proficiency Schemes

To ensure the accuracy of the analytical testing the laboratory participates in several external proficiency schemes. The ongoing competence of the laboratory and its staff is assessed by participation in various inter-laboratory proficiency testing schemes, such as LGC Aquacheck scheme and the EPA Intercalibration programme organised for environmental laboratories throughout Ireland. Bord na Móna Technical & Laboratory Services Analytical Laboratory is listed on the EPA's register of Quality Controlled Laboratories

3.3 Control Chain of Custody

As part of the Quality System in place at Bord na Móna Technical Services, measures are taken to ensure controlled chain of custody. An outline of the chain of custody is given below.

BORD NA MÓNA

CONTROLLED CHAIN OF CUSTODY

SITE		TRANSPORT		LABORATORY
Sampling and packaging of all samples were carried out by Bord na Móna Technical Team:	Transport Document Form	Transport to laboratory by Bord na Móna Technical Team.	Sample Reception Form	Receiving of samples at Bord na Móna Environmental Laboratory complex by: Laboratory Manager (Secure laboratory complex access to authorised personnel only)
Mr. Peter Coogan	→		→	↓
				Storage of all samples for 1 month period after report issue.
				↓
				Supervised Disposal

4.0 RESULTS

Table 4.1 below presents the results of the dust deposition monitoring at the AES facility in Portlaoise, Co. Laois.

TABLE 4.1: RESULTS OF DUST DEPOSITION		
Sample Name	Deposition Rate ($mg/m^2/day$)	*Waste Licence Dust Deposition Limit ($mg/m^2/day$)*
D1	174	*350*
D2	210	*350*
D4	42	*350*

5.0 COMMENT

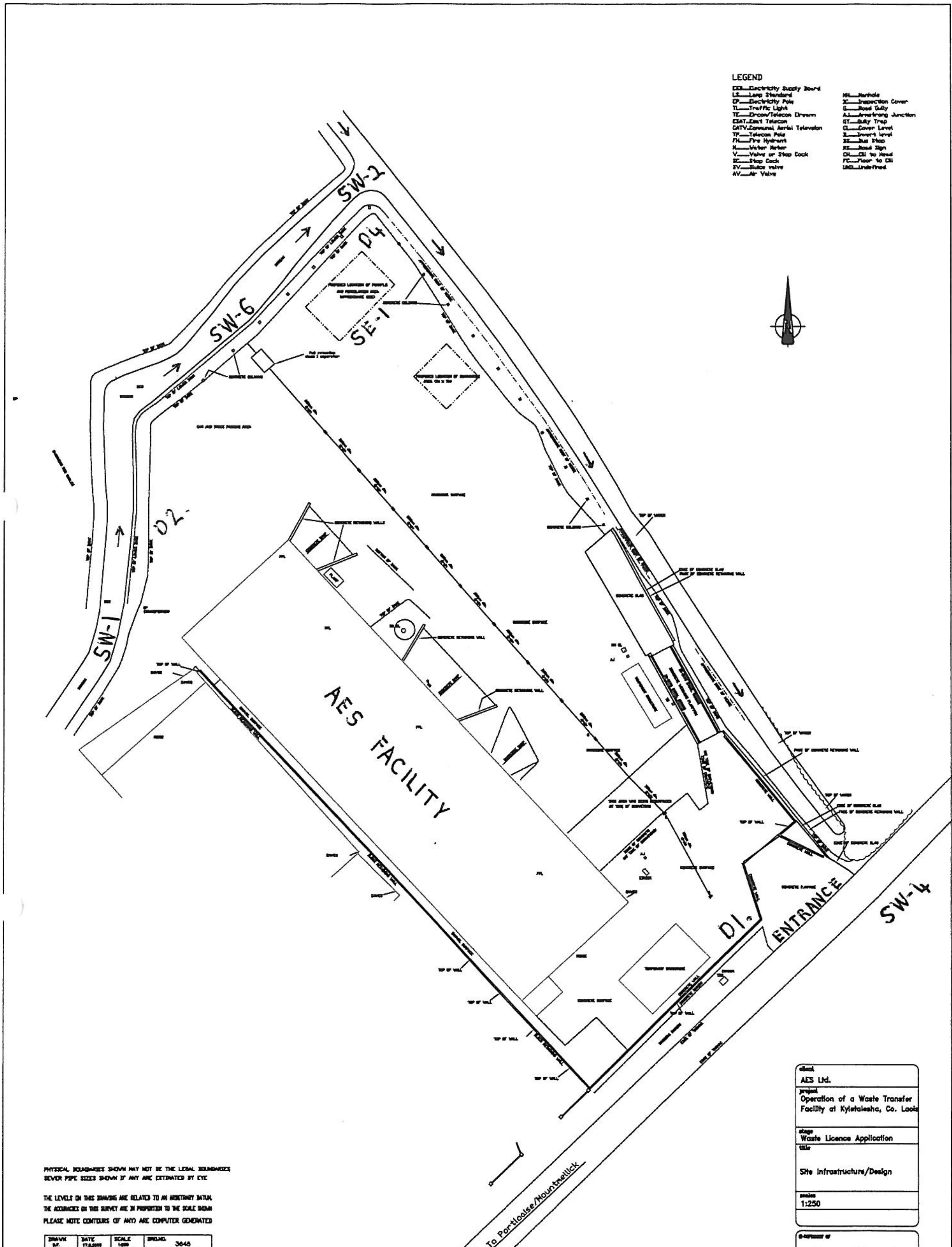
The results of the dust deposition survey which was carried out between the 29th of July and the 26th of August 2009 (28 days) at the AES facility are presented in Table 4.1.

The Waste Licence limit for dust deposition is given as $350mg/m^2/day$ as per Schedule D.2 of Waste Licence W0194-02.

The results of the survey indicate that dust levels at all sampling locations are within the limit value of $350mg/m^2/day$.

APPENDIX 1

Map of Dust Monitoring Locations


LEGEND
ESB—Electricity Supply Board
LS—Lamp Standard
EP—Electricity Pole
TL—Traffic Light
TE—Dcom/Telecom Dream
ESAT—East Telecom
CATV—Communal Aerial Television
TP—Telecom Pole
FH—Fire Hydrant
M—Water Meter
V—Valve or Stop Cock
SC—Stop Cock
SV—Sluice valve
AV—Air Valve
MH—Manhole
IC—Inspection Cover
G—Road Gully
AJ—Armstrong Junction
GT—Gully Trap
CL—Cover Level
IL—Invert level
BS—Bus Stop
RS—Road Sign
CH—Cill to Head
FC—Floor to Cill
UND—Undefined
SW-2
SW-6
SW-1
SW-4
D4
D2
D1
SE-1
AES FACILITY
ENTRANCE
To Portlaoise/Mountmellick
PHYSICAL BOUNDARIES SHOWN MAY NOT BE THE LEGAL BOUNDARIES
SEWER PIPE SIZES SHOWN IF ANY ARE ESTIMATED BY EYE
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Precision Surveys
3646
client
AES Ltd.
project
Operation of a Waste Transfer Facility at Kyletalesha, Co. Laois
stage
Waste Licence Application
title
Site Infrastructure/Design
scales
1:250
BORD NA MÓNA
drawing no.
D.1
revision
A

BORD NA MÓNA

BORD NA MÓNA ENVIRONMENTAL LIMITED

ENVIRONMENTAL ASSESSMENT OF THE QUALITY OF EMISSIONS TO GROUND WATER AT THE ADVANCED ENVIRONMENTAL SOLUTIONS (IRELAND) LTD. SITE AT PORTLAOISE, CO. LAOIS IN ACCORDANCE WITH WASTE LICENCE REGISTER NO. W0194-02

For the Attention of:
Ms. Linda Cahill
Environmental Officer
Advanced Environmental Solutions (Ireland) Ltd.
Unit 1 Monread Commercial Park
Monread Road
Naas
Co. Kildare

Prepared by:
Mr. Peter Coogan
Monitoring Team Leader

Reviewed by:
Mr. Ronan Connolly
Environmental Scientist

Report No: ECS3387
Monitoring Period: July 2009
Reporting Period: September 2009

Executive Summary

In accordance with Waste Licence Register No. W0194-02, Advanced Environmental Solutions Ltd. (AES) is required to carry out an assessment of Wastewater discharges following treatment from its Kyletalesha Waste Transfer Facility on a biannual basis. Bord na Móna Technical Services was commissioned to perform the sampling and analysis. The site was subsequently visited by a Bord na Móna Environmental Scientist on the 29th July 2009 for the second biannual sampling event. A sample of treated wastewater prior to discharge was collected and returned to the laboratory for subsequent analysis.

The sample abstracted from the discharge point from the Puraflo treatment tank was clear with no suspended solids and had a slight odour.

Ammonia was detected at a concentration of 8.2 mg/l and the BOD was 4 mg/l.

Respectively Submitted,

Mr. Peter Coogan
Monitoring Team Leader

Mr. Ronan Connolly
Environmental Scientist

CONTENTS

1.0 INTRODUCTION

In accordance with Waste Licence Register No. W0194-02, AES is required to carry out an assessment of Wastewater discharges following treatment from its Kyletalesha Waste Transfer Facility on a biannual basis. Bord na Móna Technical Services was commissioned to perform the sampling and analysis.

An Environmental Scientist from Bord na Móna Technical Services visited the site on the 29th of July 2009 to carry out the second biannual sampling event of 2009.

The sample was abstracted from the discharge point on the Puraflo treatment tank before final discharge to the percolation area.

The treated wastewater sample was returned to the laboratory for subsequent analysis. This report presents details of both the methodologies employed and results obtained.

2.0 METHODOLOGY

2.1 Sampling Location

The Wastewater sampling location is described in Table 2.1 below and marked on the map contained in Appendix 1.

TABLE 2.1: LOCATION OF WASTE WATER SAMPLING STATION	
Sample Point	**Location**
SE-1	Northern corner of AES facility

A grab sample of treated Wastewater was extracted in accordance with standard procedures. The samples was returned to the laboratory and stored at 2-8°C prior to analysis.

2.2 Analysis

Analysis of all samples was carried out in strict accordance with recognised standard methods as detailed in Table 2.2 below

TABLE 2.2: CHEMICAL ANALYSIS OF SAMPLES		
Parameter	**Limit of Detection/Range**	**Method**
Visual Inspection	-	On-Site Visual Determination
Odour	-	On-Site Sensory Determination
*Biochemical Oxygen Demand BOD_5 – TCMP (mg/l)	2 – 5000	G/04 Based on APHA 2005, 21st Edition, 5210B
*Ammonia (mg/l)	<0.02	G/67 Based on APHA 2005, 21st Edition, 4500-NH3 and bluebook Ammonia in waters 1981.

Note: **APHA** - American Public Health Association, Standard Methods for the Examination of Waters and Waste Waters, 21st Edition, 2005.

G/ - INAB Accredited Method, Bord na Móna Environmental & Analytical Services Standard Operating Procedures Manual

* INAB Accredited test method

3.0 ACCREDITED QUALITY SYSTEM

3.1 INAB Accreditation

Bord na Móna Technical Services analytical laboratories is accredited to ISO 17025 by the National Accreditation Board (INAB). ISO 17025 accreditation ensures that the laboratory operates a quality system with technically competent staff. The laboratory has accreditation since 1997 and it is the policy of the laboratory to achieve and maintain a high standard of quality consistent with client's requirements in all aspects of the work carried out within the laboratory.

3.2 Interlaboratory Proficiency Schemes

To ensure the accuracy of the analytical testing the laboratory participates in several external proficiency schemes. The ongoing competence of the laboratory and its staff is assessed by participation in various inter-laboratory proficiency testing schemes, such as LGC Aquacheck scheme and the EPA Intercalibration programme organised for environmental laboratories throughout Ireland. Bord na Móna Technical Services & Laboratory Services Analytical laboratory is listed on the EPA's register of Quality Controlled Laboratories

3.3 Controlled Chain of Custody

As part of the Quality System in place in Bord na Móna Technical Services, measures are taken to ensure controlled chain of custody. An outline of the chain of custody is given below.

BORD NA MÓNA

CONTROLLED CHAIN OF CUSTODY

SITE	TRANSPORT	LABORATORY
Sampling and packaging of all samples were carried out by Bord na Móna Technical Team: Mr. Peter Coogan	Transport Document Form → Transport to laboratory by Bord na Móna Technical Team.	Sample Reception Form → Receiving of samples at Bord na Móna Technical Services Analytical Laboratories complex (Secure laboratory complex access to authorised personnel only) ↓ Storage of all samples for 1 month period after report issue. ↓ Supervised Disposal

4.0 RESULTS

The results of the analysis of the treated Wastewater sample obtained from the AES Kyletalesha Waste Transfer Facility on the 29th of July 2009 are presented in Table 4.1 below.

TABLE 4.1: RESULTS OF CHEMICAL ANALYSIS OF EMMISSIONS TO GROUNDWATER SAMPLES

Parameter	SE-1
On-Site Visual Inspection	Clear, no SS
Odour	Slight
*BOD (TCMP) mg/l	4
*Ammonia mg/l as N	8.2

* INAB Accredited Method

5.0 COMMENT

Emission limits for discharge from the treatment tank prior to percolation are not specified in the Waste Licence (Register No. W0194-02).

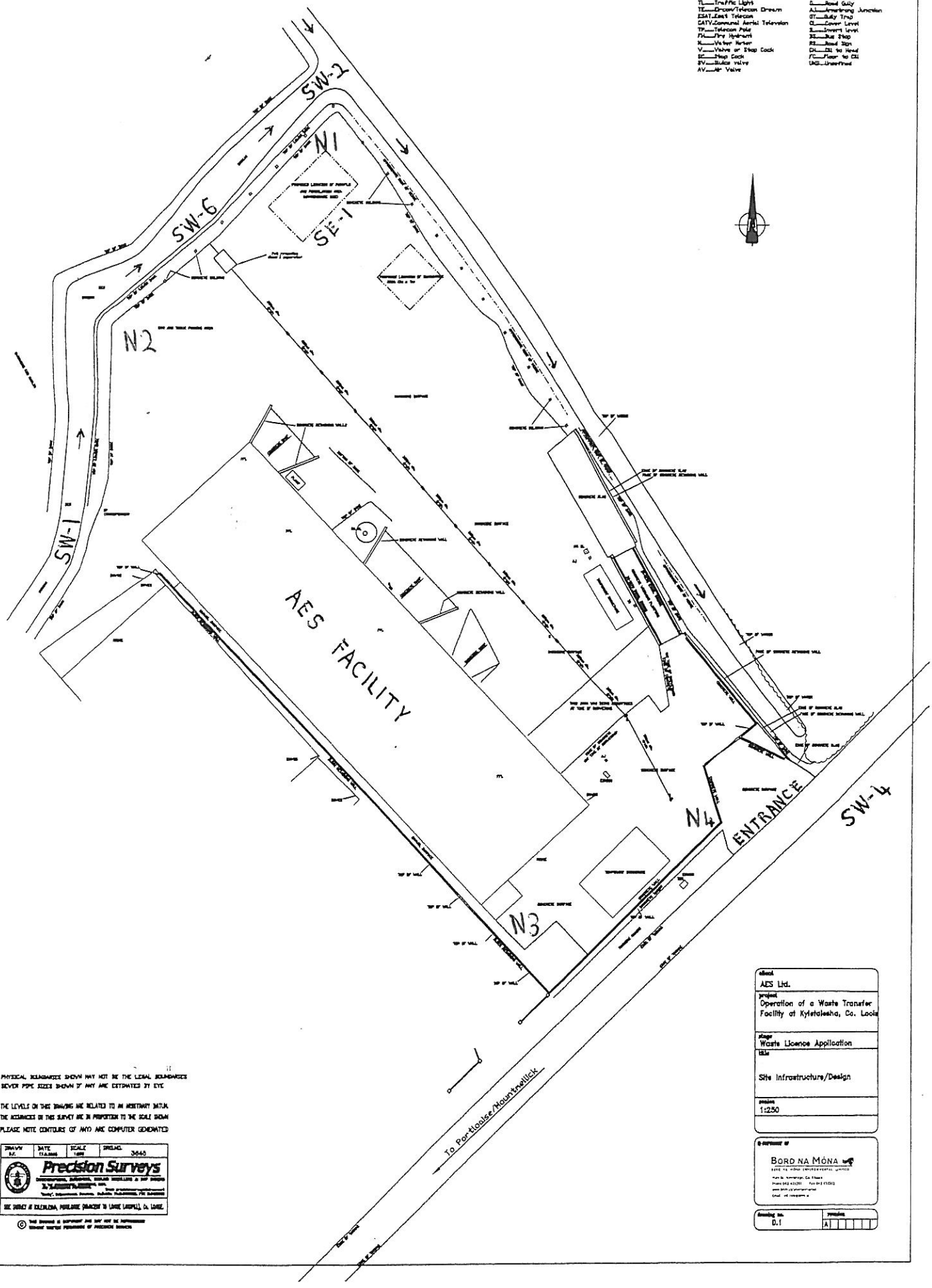
Under Schedule D, Table D.5.1 sampling of treated Wastewater, prior to entering the percolation area is to be conducted on a biannual basis.

The sample abstracted from the discharge point on the Puraflo treatment tank was clear in colour with no Suspended Solids and a slight Odour.

Ammonia was detected at a level of 8.2mg/l and the BOD was 4mg/l.

APPENDIX 1

Sample Location Map



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SEWER PIPE SIZES SHOWN IF ANY ARE ESTIMATES BY EYE

THE LEVELS ON THIS DRAWING ARE RELATED TO AN ARBITRARY DATUM
THE ACCURACIES ON THIS SURVEY ARE IN PROPORTION TO THE SCALE SHOWN
PLEASE NOTE CONTOURS IF ANY ARE COMPUTER GENERATED

DRAWN BY	DATE	SCALE	DRG.NO.
		1:250	3645

Precision Surveys

SITE SURVEY AT KYLETALESHA, PORTLAOISE JUNCTION TO LANDFILL, Co. LAOIS.

client: AES Ltd.

project: Operation of a Waste Transfer Facility at Kyletalesha, Co. Laois

stage: Waste Licence Application

title: Site Infrastructure/Design

scale: 1:250

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drawing no. D.1

revision A

Environmental Assessment of the Quality of Emissions to Ground Water at the Advanced Environmental Solutions (Ireland) Ltd. Site at Portlaoise, Co. Laois in Accordance with Waste Licence Register No. W0194-02

For the Attention of:
Ms. Linda Cahill
Environmental Officer
Advanced Environmental Solutions (Ireland) Ltd.
Unit 1 Monread Commercial Park
Monread Road
Naas
Co. Kildare

Prepared by:
Mr. Peter Coogan
Monitoring Team Leader

Reviewed by:
Ms. Josephine Chadwick
Environmental Scientist

Report No: ECS3268
Reporting Period: March 2009

Executive Summary

In accordance with Waste Licence Register No. W0194-02, Advanced Environmental Solutions Ltd. (AES) is required to carry out an assessment of Wastewater discharges following treatment from its Kyletalesha Waste Transfer Facility on a biannual basis. Bord na Móna Technical Services was commissioned to perform the sampling and analysis. The site was subsequently visited by a Bord na Móna Environmental Scientist on the 19th February 2009 for the first biannual sampling event. A sample of treated wastewater prior to discharge was collected and returned to the laboratory for subsequent analysis.

The sample abstracted from the discharge point from the Puraflo treatment tank was slightly clear with no Suspended Solids and slight Odour.

Ammonia was detected at a concentration of 6mg/l and the BOD was <2mg/l.

Respectively Submitted,

Mr. Peter Coogan
Monitoring Team Leader

Ms. Josephine Chadwick
Environmental Scientist

CONTENTS

1.0 INTRODUCTION

In accordance with Waste Licence Register No. W0194-02, AES is required to carry out an assessment of Wastewater discharges following treatment from its Kyletalesha Waste Transfer Facility on a biannual basis. Bord na Móna Technical Services was commissioned to perform the sampling and analysis.

An Environmental Scientist from Bord na Móna Technical Services visited the site on the 19th of February 2009 to carry out the first biannual sampling event of 2009.

The sample was abstracted from the discharge point on the Puraflo treatment tank before final discharge to the percolation area.

The treated wastewater sample was returned to the laboratory for subsequent analysis. This report presents details of both the methodologies employed and results obtained.

2.0 METHODOLOGY

2.1 Sampling Location

The Wastewater sampling location is described in Table 2.1 below and marked on the map contained in Appendix 1.

TABLE 2.1: LOCATION OF WASTE WATER SAMPLING STATION	
Sample Point	**Location**
SE-1	Northern corner of AES facility

A grab sample of treated Wastewater was extracted in accordance with standard procedures. The samples was returned to the laboratory and stored at 2-8°C prior to analysis.

2.2 Analysis

Analysis of all samples was carried out in strict accordance with recognised standard methods as detailed in Table 2.2 overleaf

TABLE 2.2: CHEMICAL ANALYSIS OF SAMPLES		
Parameter	**Limit of Detection/Range**	**Method**
Visual Inspection	-	On-Site Visual Determination
Odour	-	On-Site Sensory Determination
*Biochemical Oxygen Demand BOD_5 – TCMP (mg/l)	2 – 5000	G/04 Based on APHA 2005, 21st Edition, 5210B
*Ammonia (mg/l)	<0.02	G/67 Based on APHA 2005, 21st Edition, 4500-NH3 and bluebook Ammonia in waters 1981.

Note: **APHA** - American Public Health Association, Standard Methods for the Examination of Waters and Waste Waters, 21st Edition, 2005.

G/ - INAB Accredited Method, Bord na Móna Environmental & Analytical Services Standard Operating Procedures Manual

* INAB Accredited test method

3.0 ACCREDITED QUALITY SYSTEM

3.1 INAB Accreditation

Bord na Móna Technical Services analytical laboratories is accredited to ISO 17025 by the National Accreditation Board (INAB). ISO 17025 accreditation ensures that the laboratory operates a quality system with technically competent staff. The laboratory has accreditation since 1997 and it is the policy of the laboratory to achieve and maintain a high standard of quality consistent with client's requirements in all aspects of the work carried out within the laboratory.

3.2 Interlaboratory Proficiency Schemes

To ensure the accuracy of the analytical testing the laboratory participates in several external proficiency schemes. The ongoing competence of the laboratory and its staff is assessed by participation in various inter-laboratory proficiency testing schemes, such as LGC Aquacheck scheme and the EPA Intercalibration programme organised for environmental laboratories throughout Ireland. Bord na Móna Technical Services & Laboratory Services Analytical laboratory is listed on the EPA's register of Quality Controlled Laboratories

3.3 Controlled Chain of Custody

As part of the Quality System in place in Bord na Móna Technical Services, measures are taken to ensure controlled chain of custody. An outline of the chain of custody is given below.

BORD NA MÓNA

CONTROLLED CHAIN OF CUSTODY

SITE		TRANSPORT		LABORATORY
Sampling and packaging of all samples were carried out by Bord na Móna Technical Team: Mr. Peter Coogan	Transport Document Form →	Transport to laboratory by Bord na Móna Technical Team.	Sample Reception Form →	Receiving of samples at Bord na Móna Technical Services Analytical Laboratories complex (Secure laboratory complex access to authorised personnel only) ↓ Storage of all samples for 1 month period after report issue. ↓ Supervised Disposal

4.0 RESULTS

The results of the analysis of the treated Wastewater sample obtained from the AES Kyletalesha Waste Transfer Facility on the 19th of February 2009 are presented in Table 4.1 below.

TABLE 4.1: RESULTS OF CHEMICAL ANALYSIS OF EMMISSIONS TO GROUNDWATER SAMPLES

Parameter	SE-1
On-Site Visual Inspection	Clear, no SS
Odour	Slight
*BOD (TCMP) mg/l	<2
*Ammonia mg/l as N	6

* INAB Accredited Method

5.0 COMMENT

Emission limits for discharge from the treatment tank prior to percolation are not specified in the Waste Licence (Register No. W0194-02).

Under Schedule D, Table D.5.1 sampling of treated Wastewater, prior to entering the percolation area is to be conducted on a biannual basis.

The sample abstracted from the discharge point on the Puraflo treatment tank was clear in colour with no Suspended Solids and a slight Odour.

Ammonia was detected at a level of 6mg/l and the BOD was <2mg/l.

APPENDIX 1

Sample Location Map

BORD NA MÓNA

BORD NA MÓNA ENVIRONMENTAL LIMITED

ENVIRONMENTAL ASSESSMENT OF THE QUALITY OF SURFACE WATERS AT THE ADVANCED ENVIRONMENTAL SOLUTIONS (IRELAND) LTD. SITE AT PORTLAOISE, CO. LAOIS IN ACCORDANCE WITH WASTE LICENCE REGISTER NO. W0194-02

For the Attention of:
Ms. Linda Cahill
Environmental Officer
Advanced Environmental Solutions (Ireland) Ltd.
Unit 1 Monread Commercial Park
Monread Road
Naas
Co. Kildare

Prepared by:
Mr. Peter Coogan
Monitoring Team Leader

Reviewed by:
Mr. Ronan Connolly
Environmental Scientist

Report No: ECS3387-SW
Monitoring Date: July 2009
Reporting Period: September 2009

Executive Summary

In accordance with Waste Licence Register No. W0194-02, Advanced Environmental Solutions Ltd. (AES) is required to carry out an assessment of the surface waters emissions from the Kyletalesha Waste Transfer Facility on a biannual basis.

Bord na Móna Technical Services was commissioned to perform the sampling and analysis.

The site was subsequently visited by a Bord na Móna Environmental Scientist on the 25th July 2009 for the second biannual sampling event. Surface Water samples were collected and returned to the laboratory for subsequent analysis.

Respectively Submitted,

Mr. Peter Coogan
Monitoring Team Leader

Mr. Ronan Connolly
Environmental Scientist

CONTENTS

1.0 INTRODUCTION

In accordance with Waste Licence Register No. W0194-02, AES is required to carry out an assessment of the surface water quality in the immediate environs of its Kyletalesha Waste Transfer Facility on a biannual basis. Bord na Móna Technical Services was commissioned to perform the sampling and analysis.

An Environmental Scientist from Bord na Móna Technical Services visited the site on the 25th of July 2009 to carry out the second biannual sampling event of 2009. AES staff directed the Bord na Móna Environmental Scientist to the sampling points which were decided on during discussions between AES and the Environmental Protection Agency (EPA). Three sample points were selected; beside the Knackery (SW-1), midway between the Knackery and the AES facility (Discharge point) (SW-6) and (SW-2) after the weir and before the final discharge into the receiving water. A fourth sample (SW-4) was also collected downstream and across from the AES site labeled the EPA sampling point.

This report details the sampling methodologies and procedures followed.

2.0 METHODOLOGY

2.1 Sampling Locations

The Surface Water sampling locations are described in Table 2.1 below and marked on the map contained in Appendix 1.

TABLE 2.1: LOCATION OF SURFACE WATER SAMPLING STATIONS

Sample Point	Location
SW-1	Located beside the Knackery
SW-6	(Discharge Point) Located between SW-1 and SW-2
SW-2	Located immediately downstream of the weir and discharge point.
SW-4	Located downstream and across from the AES facility

Grab samples of surface water were extracted in accordance with standard procedures. All samples were returned to the laboratory and stored at 2-8°C prior to analysis.

2.2 Analysis

Analysis of all samples was carried out in strict accordance with recognised standard methods as detailed in Tables 2.2 overleaf

TABLE 2.2: CHEMICAL ANALYSIS OF SAMPLES		
Parameter	**Limit of Detection/Range**	**Method**
Visual Inspection	-	On-Site Visual Determination
Odour	-	On-Site Sensory Determination
pH (pH units)	0.1 – 14	G/05 Based on APHA 2005, 21st Edition, Method 4500 H+B
Biochemical Oxygen Demand BOD_5 – TCMP (mg/l)	2 – 5000	G/04 Based on APHA 2005, 21st Edition, Method 5210B
Chemical Oxygen Demand COD (mg/l)	10 – 1500	G/03 Based on APHA 2005, 21st Edition, Method 5220D
Conductivity (µS/cm)	0.1 - 1999	G/06 Based on APHA 2005, 21st Edition, Method 2510B
Total Suspended Solids (mg/l)	<5	G/19 Based on APHA 2005, 21st Edition, Method 2540D
Ammonia (mg/l)	<0.02	G/67 Based on APHA 2005, 21st Edition, 4500-NH3 and bluebook Ammonia in waters 1981.
*Total Nitrogen (mg/l)	<1.0	Based on ENV 12260 1996
Nitrate (mg/l)	<0.2	G/67 Based on APHA 2005, 21st Edition, 4500-N02B colorimetric method
Nitrite (mg/l)	<0.02	G/67 Based on APHA 2005, 21st Edition, 4500-N02B colorimetric method
*TKN (mg/l)	<10	In House Method based on Calculation (TN-TON
*Total Phosphorus (mg/l)	<0.05	Persulphate digest followed by colimetric method
*Oils, Fats and Greases (OFG's) (mg/l)	<1	G/32 Based on APHA 2005 21st Edition Method 5520B
Diesel Range Organics (DRO) (µg/l)	<10	GC - FID

Note: **APHA** - American Public Health Association, Standard Methods for the Examination of Waters and Waste Waters, 21st Edition, 2005.
G/ - INAB Accredited Method, Bord na Móna Environmental & Analytical Services Standard Operating Procedures Manual
Non INAB Accredited test method

3.0 ACCREDITED QUALITY SYSTEM

3.1 INAB Accreditation

Bord na Móna Technical Services analytical laboratories is accredited to ISO 17025 by the National Accreditation Board (INAB). ISO 17025 accreditation ensures that the laboratory operates a quality system with technically competent staff. The laboratory has accreditation since 1997 and it is the policy of the laboratory to achieve and maintain a high standard of quality consistent with client's requirements in all aspects of the work carried out within the laboratory.

3.2 Interlaboratory Proficiency Schemes

To ensure the accuracy of the analytical testing the laboratory participates in several external proficiency schemes. The ongoing competence of the laboratory and its staff is assessed by participation in various inter-laboratory proficiency testing schemes, such as LGC Aquacheck scheme and the EPA Intercalibration programme organised for environmental laboratories throughout Ireland. Bord na Móna Technical Services & Laboratory Services Analytical Laboratory is listed on the EPA's register of Quality Controlled Laboratories

3.3 Controlled Chain of Custody

As part of the Quality System in place in Bord na Móna Technical Services, measures are taken to ensure controlled chain of custody. An outline of the chain of custody is given below.

BORD NA MÓNA

CONTROLLED CHAIN OF CUSTODY

SITE		TRANSPORT		LABORATORY
Sampling and packaging of all samples were carried out by Bord na Móna Technical Team: Mr. Peter Coogan	Transport Document Form →	Transport to laboratory by Bord na Móna Technical Team.	Sample Reception Form →	Receiving of samples at Bord na Móna Technical Services Analytical Laboratories complex (Secure laboratory complex access to authorised personnel only) ↓ Storage of all samples for 1 month period after report issue. ↓ Supervised Disposal

4.0 RESULTS

The results of the investigation carried out by Bord na Móna Technical Services are presented in Table 4.1 below.

TABLE 4.1: RESULTS OF CHEMICAL ANALYSIS OF SURFACE WATER SAMPLES

Parameter	SW-1	SW-6	SW-2	SW-4
pH (pH units)	7.6	6.4	7.4	7.7
Conductivity µS/cm @ 25°C	2,647	983	1,433	1,268
On-Site Visual Inspection	Light Brown, Some S.S	Black colour, Oily Surface, High S.S	Brown colour, Oily Surface, some S.S	Light pale brown, oily surface, no S.S
Odour	Slight Odour	Strong Odour	Strong Odour	Slight Odour
BOD (TCMP) mg/l	6	475	91	3
COD mg/l	83	972	299	95
Suspended Solids mg/l	29	232	68	22
*Oils, Fats and Greases mg/l	6	21	9	15
**Mineral Oils µg/l Note 1	<10.0	483	929	<10.0
**DRO µg/l	191	3,670	803	322
Ammonia mg/l as N	55.00	3.16	28.00	23.00
Nitrate mg/l	7.7	<0.2	<0.2	<0.2
Nitrite mg/l	0.04	<0.02	<0.02	<0.02
*TKN mg/l	56.56	16.00	34.00	27.00
TON as N mg/l	0.44	<0.2	<0.2	<0.2
*Total Nitrogen mg/l	57.00	16.00	34.00	27.00
*Total Phosphorus mg/l	0.84	2.88	0.84	0.46

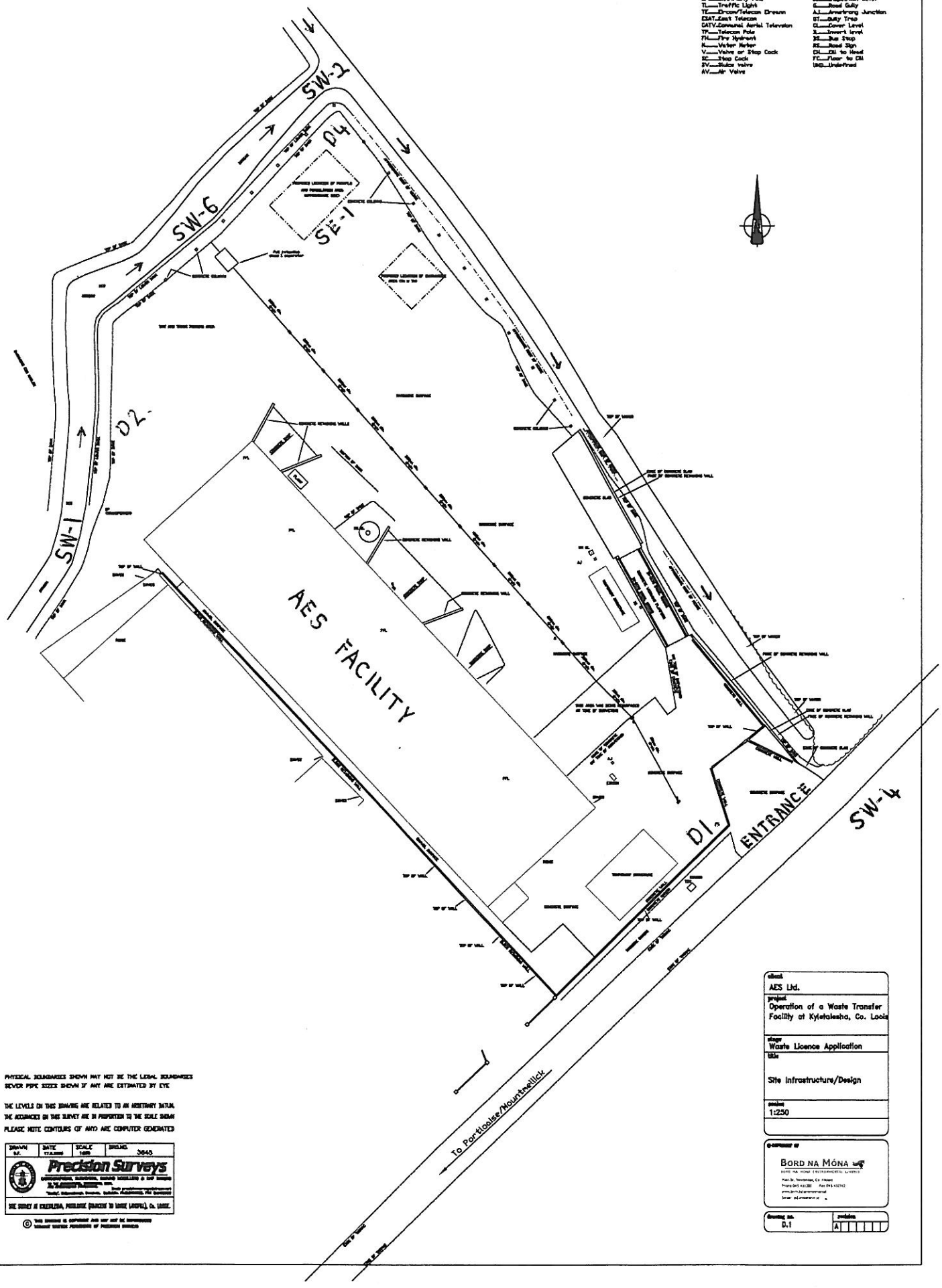
* = Non INAB Accredited Method

** = Subcontracted Test

Note 1: Surface Water Discharge limit for Mineral Oils given as 5mg/l as per Schedule C of Waste Licence W0194-02.

APPENDIX 1

Map of Monitoring Locations



PHYSICAL BOUNDARIES SHOWN MAY NOT BE THE LEGAL BOUNDARIES
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THE LEVELS ON THIS DRAWING ARE RELATED TO AN ARBITRARY DATUM.
THE ACCURACIES ON THIS SURVEY ARE IN PROPORTION TO THE SCALE SHOWN
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DRAWN	DATE	SCALE	DRGNO.
S.F.	17.6.2005	1:250	3645

Precision Surveys

SITE SURVEY AT KYLETALESHA, PORTLAOISE (ADJACENT TO OSSORY LANDFILL) Co. LAOIS.

client
AES Ltd.

project
Operation of a Waste Transfer Facility at Kyletalesha, Co. Laois

stage
Waste Licence Application

title
Site Infrastructure/Design

scales
1:250

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BORD NA MÓNA

Drawing no. D.1

revision A

Environmental Assessment of the Quality of Surface Waters at the Advanced Environmental Solutions (Ireland) Ltd. Site at Portlaoise, Co. Laois in Accordance with Waste Licence Register No. W0194-02

For the Attention of:
Ms. Linda Cahill
Environmental Officer
Advanced Environmental Solutions (Ireland) Ltd.
Unit 1 Monread Commercial Park
Monread Road
Naas
Co. Kildare

Prepared by:
Mr. Peter Coogan
Monitoring Team Leader

Reviewed by:
Mr. Ronan Connolly
Environmental Scientist

Report No: ECS3334-SW
Monitoring Date: May 2009
Reporting Period: June 2009

Executive Summary

In accordance with Waste Licence Register No. W0194-02, Advanced Environmental Solutions Ltd. (AES) is required to carry out an assessment of the surface waters emissions from the Kyletalesha Waste Transfer Facility on a biannual basis.

Bord na Móna Technical Services was commissioned to perform the sampling and analysis.

The site was subsequently visited by a Bord na Móna Environmental Scientist on the 14th June 2009 to conduct extra sampling for the first biannual event. Surface Water samples were collected and returned to the laboratory for subsequent analysis.

Respectively Submitted,

Mr. Peter Coogan	Mr. Ronan Connolly
Monitoring Team Leader	Environmental Scientist

CONTENTS

1.0 INTRODUCTION

In accordance with Waste Licence Register No. W0194-02, AES is required to carry out an assessment of the surface water quality in the immediate environs of its Kyletalesha Waste Transfer Facility on a biannual basis. Bord na Móna Technical Services was commissioned to perform the sampling and analysis.

An Environmental Scientist from Bord na Móna Technical Services visited the site on the 14th of May 2009 to carry out extra sampling for the first biannual sampling event of 2009. AES staff directed the Bord na Móna Environmental Scientist to the sampling points which were decided on during discussions between AES and the Environmental Protection Agency (EPA). Three sample points were selected; beside the Knackery (SW-1), midway between the Knackery and the AES facility (Discharge point) (SW-6) and (SW-2) after the weir and before the final discharge into the receiving water. A fourth sample (SW-4) was also collected downstream and across from the AES site labeled the EPA sampling point.

This report details the sampling methodologies and procedures followed.

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The Surface Water sampling locations are described in Table 2.1 below and marked on the map contained in Appendix 1.

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4.0 RESULTS

The results of the investigation carried out by Bord na Móna Technical Services are presented in Table 4.1 below.

TABLE 4.1: RESULTS OF CHEMICAL ANALYSIS OF SURFACE WATER SAMPLES

Parameter	SW-1	SW-6	SW-2	SW-4
pH (pH units)	7.4	6.7	7.4	7.5
Conductivity ∝S/cm @ 25°C	817	1,993	4,010	1,298
On-Site Visual Inspection	Light Brown, No S.S Slight Oily Surface	Dark Brown, Slight Oily Surface, Some fine S.S	Light Brown, Slight Oily Surface, High S.S	Light Brown, Some fine S.S
Odour	Slight Odour	Strong Odour	Slight Odour	Slight Odour
BOD (TCMP) mg/l	3	925	9	4
COD mg/l	89	1,550	132	98
Suspended Solids mg/l	<5	140	77	6
*Oils, Fats and Greases mg/l	32	86	36	10
**Mineral Oils ∝g/l Note 1	<10	546	221	<10
**DRO ∝g/l	<10	2,470	474	113
Ammonia mg/l as N	15	12	119	28
Nitrate mg/l	0.99	<0.2	0.59	0.35
Nitrite mg/l	<0.02	<0.02	<0.02	<0.02
*TKN mg/l	16.01	34	115.40	29.65
TON as N mg/l	0.99	<0.2	0.6	0.35
*Total Nitrogen mg/l	17	34	116	30
*Total Phosphorus mg/l	0.17	3.78	1.41	0.32

* = Non INAB Accredited Method

** = Subcontracted Test

Note 1: Surface Water Discharge limit for Mineral Oils given as 5mg/l as per Schedule C of Waste Licence W0194-02.

Appendix III

Energy Efficiency Report

AUDIT OF ENERGY EFFICIENCY AS REQUIRED BY CONDITIONS 7.1 AND 7.2 OF WASTE LICENCE REG NO. W194-02 FOR ADVANCED ENVIRONMENTAL SOLUTIONS (IRELAND) LIMITED (KYLETALESHA WASTE TRANSFER FACILITY, PORTLAOISE, CO. LAOIS.)

For the Attention of:
Mr. Ken Doran/Mr Garrett Leech
AES Portlaoise
Kyletalesha,
Portlaoise,
Co. Laois.

Prepared by:
Adele Woods
Environmental Consultant

Reviewed by:
Sean Creedon
Senior Environmental Consultant

Report No: ECS 3468
Date: October 2009

Executive Summary

As part of the implementation of the Waste Licence W0194-02 at the Advanced Environmental Solutions facility, at the Kyletalesha Waste transfer facility an Energy Audit was carried out on the 24th April 2009 by Bord Na Móna Environmental Consultancy Services. It was carried out in fulfilment of Conditions 7.1 and 7.2 of the Waste Licence. The scope of the audit involved an assessment of the site with respect to energy consumption and subsequently identifying opportunities for energy use reduction and efficiency.

Following this audit, it was considered that given the processes undertaken at the site and the energy performance at the facility, an energy management plan would facilitate the company with assessing ongoing energy consumption. Ongoing attention to non-production items for example space heating, canteen facilities and lighting, will identify areas where improvements can be continuously made.

An energy matrix demonstrates that some improvements in the practice of the Energy Policy are required to ensure that best practice is delivered across all areas of energy management. This is particularly important in the area of accountability and Monitoring and Targeting.

Following the audit consideration should also be given to a permanent move from diesel generated power that is used to supply the main processing building on site.

Implementation of the recommendations outlined in this report will assist in improving energy performance at the site. The recommendations included in this audit should be implemented over a reasonable time frame, with the recommendations incorporated into the facility's EMS and the Schedule of Objectives and Targets included in the AER.

Respectfully submitted,

Adele Woods
Environmental Consultant

Mr. Sean Creedon
Senior Environmental Consultant

TABLE OF CONTENTS

1.0 INTRODUCTION

In compliance with Condition 7.1 and 7.2 '*Resource Use and Energy Efficiency'* of the Waste Licence Register Number W194-02, an energy audit was carried at AES Portlaoise. These Conditions are stated below.

Condition 7.1
'The licensee shall carry out an audit of the energy efficiency of the site within one year of the date of grant of this licence. The audit shall be carried out in accordance with the guidance published by the Agency: "Guidance Note on Energy Efficiency Auditing". The energy efficiency audit shall be repeated at intervals as required by the Agency'.

Condition 7.2
'The audit shall identify all opportunities for energy use reduction and efficiency and the recommendations of the audit will be incorporated into the Schedule of Environmental Objectives and Targets under condition 2 above'.

The audit was conducted on the 24th April 2009 by two Environmental Consultants from Bord Na Móna Environmental Ltd. Assistance was provided by the Facility manager Mr. Ken Doran. The scope of the audit was to examine the site with respect to energy consumption and subsequently identify opportunities for energy use reduction and efficiency.

This report presents the main findings of the audit and outlines the current status of the site in terms of its potential for a reduction in energy consumption. A schedule for the implementation of energy efficiency measures should be set out to achieve energy reduction goals.

2.0 OBJECTIVES

The objectives of the energy audit were as follows:

- To gain an overall impression of the energy status of the AES Portlaoise facility;
- To establish the main energy consumers at the site;
- To evaluate the carbon emissions for the site from energy sources; and
- To propose energy efficiency measures and outline a schedule for the implementation of these measures.

3.0 DESCRIPTION OF ACTIVITIES AT ADVANCED ENVIRONMENTAL SOLUTIONS FACILITY AT PORTLAOISE.

3.1 Facility Background

The AES Facility at Portlaoise is licensed by the Environmental Protection Agency (Agency) under Waste Licence Register Number W194-02. The facility falls under the Class of Activity 4.2 'Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)'. This licence was granted on 30th November 2006.

The AES Facility at Portlaoise is located on the outskirts of Portlaoise, Co. Laois. The surrounding land use includes a knackery and Kytelasha Landfill site.

The company was first established in 1996 as Waste Recycling Ireland and subsequently commenced trading as AES in 2001. The primary function of the company involves waste recycling/trading and providing waste disposal solutions to commercial/domestic customers.

The facility is licensed to receive 99,000TPA. The waste activities at the facility mainly consist of sorting wastes via a trammel and picking line, bulking of wastes and forwarding wastes to other sites for further processing. Waste that is accepted and processed at AES Portlaoise includes:

- Construction and Industrial
- Construction and Demolition
- Timber
- Domestic
- Dry mix recyclables
- Commercial and domestic glass collection

Currently, twenty-two people are employed at the facility. The facility operates Monday to Friday 7 a.m. to 6.00 p.m. and from 8 a.m. to 1 p.m. on Saturdays.

3.2 Production Process

3.2.1 Raw Materials

The following raw materials and their uses at AES Kyletalesha Waste Transfer Facility are described below.

• Electricity – power supply for offices & Canteen etc	• .Diesel – to power on-site Generators which runs the processing building and on site plant & equipment.
• Kerosene – heating (for half of the office building)	• Water – Wheel wash, Bin Wash & domestic requirements
• Hydraulic oil- plant & equipment	

3.2.2 Storage and Transport of Raw Materials

(i) Kerosene was supplied by Suttons and stored in a 1,000 litre kerosene tank. Kerosene is used to supply a boiler which heats five radiators in the Administration building.

(ii) Yard Diesel was supplied by Suttons and stored in a 200 litre diesel tank, which is contained within the generator and a second 3,000 litre bunded feed tank. There is also a third bunded diesel tank of 5,000 litre capacity which is used to power the generator that runs the processing building and all the on-site mobile plant & equipment. This tank is located in the yard adjacent to the weighbridge offices.

(iii) Electricity is supplied to the site by the ESB. The electricity supply is used to power the administration buildings only and is supplied by single phase power.

(iv) Water is supplied to the AES Portlaoise facility by Laois County council. There are no water meters installed at the facility to monitor water usage. Water is used on site for the wheel wash and for domestic requirements.

3.2.3 Process Building

The process building is powered from a 360 kVA diesel powered generator. The generator was purchased and is maintained by McCormack Mc Noughton (CAT dealership). Maintenance is conducted based on hours of use. The generator received its last maintenance service on the 25/03/09 after its first 1236 hours of usage.

The processing building is constructed of half cladding and half block work. This building is approximately 20% open to the outdoors. There is approximately 6 inch fibreglass insulation. The area is serviced by 23 skylights. Waste tipping and segregation are the main activities that occur within the building. Waste is loaded onto conveyor belts and trommels were all the fines are removed. The remaining waste is then passed along a conveyor and is manually sorted on the picking deck. The equipment used in this process includes the following: Feeder conveyor (5.5Kw), Incline Conveyor (11Kw), one Trommel (45Kw), one trammel discharge Conveyor (7.5 Kw), Picking Deck (9.2 Kw) and Overband magnet (3Kw). There is power surge protection in place on all the waste processing equipment

All the equipment in the Processing building was in operation at the time of the audit. The facility manager informed the auditors that the processing building equipment operates from 7.30 a.m. to 6 p.m. however all equipment is powered off during staff breaks. (Staff breaks are form 10 a.m. to 10.30 a.m. and from 1 p.m. to 2 p.m). The facility manager informed the auditors that one employee is charged with powering down and up the equipment before and after staff break times. A deputy has also been nominated in his absence.

There were 23 skylights in the processing building which aids natural light entering the building. The skylights were not clean on the day of the audit so maximum use of the natural daylight was not being utilised. There is no maintenance programme in place for cleaning of the skylights.

The lighting in the processing building is supplied from 31 halogen lamps (240 watt), two of which were turned off at the time of the audit. Three of these lights remain on continuously and act as emergency lighting.

Picking Deck area

In the waste picking deck the lighting was supplied from 5 halogen lights (240 watt), all of which were on, 4 smaller spot lights (24 watt) 3 of which were on and 10 (24 watt lights) all of which were off. There were 4 internal windows which looked out into the processing building. Natural light was also illuminating the picking deck area via 3 skylights and an external door to the North of the building, which was open at the time of the audit.

3.2.4 Administration Offices

Adjacent to the main entrance at the south of the site there are a number of offices that are housed within temporary portacabin buildings. The portacabin comprises of a wooden floor, flat roof, steel cladding and double glazing windows. Building integrity is good, however the insulation properties of the building would be considered poor. Details for each of the offices are given below

Main Entrance Corridor

This small corridor is located at the entrance to the building. It has one radiator which is supplied from the kerosene boiler. The radiator was turned off. The main energy consumer was one 58W fluorescent light (on) and a 35 W Flycatcher. The temperature in the room was 12.1°C. The external door was open at the time of the audit.

2 x Toilets

There are two cubicles located adjacent to each other, which are located off the main corridor. Each cubicle contains a radiator (one in each of the cubicles), and a 100W light bulb. One of the cubicles contained a 1200 W hot water boiler which is manually controlled. The boiler was off during the audit. The temperature in these cubicles was 13.4°C. The windows were closed in both cubicles.

Coffee Dock Area

The main electricity users in this office were an 800 W microwave oven, an 80 W water cooler, a 700W toaster, a fridge which had no rating, and a 58 W fluorescent light (on). This room was unoccupied at the time of the audit. The room contains one single glazed window to the east which was closed at the time of the audit. The temperature in the room was 14.9 °C.

Main Office

On the day of auditing, the temperature within the main office was 16.3°C. The room contains 6 x 58W fluorescent lights (2 off at the time of audit), seven single glazed windows (all closed), 1 x 1500W manually operated convective heaters (on at the max setting at the time of audit), 1 kerosene fuel radiator (off at time of audit), a 2800 Kw B rated dehumidifier (off at time of audit) The main office also stores a fan (28W), 2 Personal computers and a printer. There was one occupant in this room on the day of auditing.

Facility Managers Office

On the day of auditing, the temperature within this office was 15.5°C. The room contains 2 x 58W fluorescent lights (off at the time of audit), two single glazed windows (closed), 1 kerosene fuel radiator (off at time of audit), a B rated dehumidifier (2800 Kw) a personal computers and a printer. There were no occupants in this room on the day of the audit.

Unoccupied office

On the day of auditing, the temperature within this office was 15.7°C. The room contains 2 x 58W fluorescent lights (off at the time of audit), three single glazed

windows (closed), 2 convection heaters (2000W), one of which was on, 2 personal computers (both off)

Meeting room

On the day of auditing, the temperature within this office was 19°C. The room contains 3 x 75W fluorescent lights (off at the time of audit), three single glazed windows (one open), 2 convection heaters (2000W), one of which was on.

3.2.5 Weighbridge Offices

Adjacent to the weighbridge on the South-East of the site there are a number of offices that are housed within a temporary portacabin building. The portacabin comprises of a wooden floor, flat roof, steel cladding and double glazing windows. Building integrity is good, however the insulation properties of the building would be considered poor. Details for each of the offices are given below

Weighbridge Office

The main electricity users in this room on the day of auditing were the five Personal Computers, two manually operated wall mounted 2000W convector heater (one on and one off), a B rated dehumidifier (2800 Kw), a toaster (700W), Kettle (2500W) and a water cooler (80W) and five 58W fluorescent lights (on). The room contains 4 double glazed window and 2 external doors and one internal door. The temperature in the room was 19.9°C. The occupancy of the room was three.

Weighbridge Hallway

This small room is located north of the Weighbridge office. The temperature at the time of audit was 14.9°C. There were two internal doors and one external door. The external door was open at the time of the audit. The occupancy at the time of auditing was zero. There one 58W fluorescent light (off).

Weighbridge Managers Office

The main electricity users in this office were a Personal commuter (off) one 2000W Convection heater (off) one 58W fluorescent light (off) and one 2800 Kw B rated dehumidifier (off). This room was unoccupied at the time of the audit and is generally only occupied 10% of the operational hours of the facility. The room contains two double glazed windows both of which were closed at the time of the audit. The temperature in the room was 16.8 °C.

3.2.6 Canteen Building

Adjacent to the Administration building on the South-East of the site are additional temporary portacabin building, which are used as a canteen area. The portacabin comprises of a wooden floor, flat roof, steel cladding and single glazing windows (2

open). The insulation properties of the building would be considered poor. The main electricity users in the building were a fly catcher (25W), Fridge, Microwave (800W), Convection heater (1500W & 200W) which was on, Kettle (2000W), Hot water boiler (1200W). The occupancy of the building at the time of the audit was zero.

3.27 Mobile Plant

The AES facility at Portlaoise has the following mobile plant:

- Two excavators,
- forklift,
- loader shovel
- teleporter.
- Portable compressor

The mobile plant is powered with diesel, which is stored in the 5,000 litre fuel tank adjacent to the weighbridge building.

3.2.8 Wastewater pump

Wastewater is pumped from the septic tank as required to a puroflo unit which is located at the rear of the site by a 540KW pump which is automatically controlled as required on a float switch. This is a single phase pump.

3.2.9 External Lighting

External light for the facility is supplied by:

- 3 halogen lights (35 watt) on weighbridge building,
- 6 (240 watt) lights also on the weighbridge building
- 6 (400 watt) lights on the outside of the processing building and
- 2 flood lights (400) watt one at the entrance to the facility and one at the weighbridge.

All external lights are on timers. All external lights were off at the time of the audit and are operated on a demand basis. These lights are only required to be turned on during the winter months.

3.2.10 Air Conditioning & Ventilation

There were four individual air conditioning / dehumidifier units, used in the offices on site. Each air conditioning unit is 2.8KW and is B-rated.

3.2.10 Bin Washing

There is a bin washing machine (6.8kW) located at the south end of the site. The bin washer is powered from a 25KVA diesel generator. The generator is serviced regularly based on hours of usage. The generator was last serviced on the 10/06/08. The bin washer is operated manually and is not based on a cycle of cleaning or on a time cycle. The bin washer is normally in operation for approximately five hours a day.

4.0 ENERGY CONSUMPTION AT THE AES PORLAOISE FACILITY

4.1 Audit Details

The Audit was carried out on the 24th April 2009. The visit involved a tour around the site through each structure, operational area and surrounds. This tour included assistance from facility manager, Mr. Ken Doran. Potential areas for improvement and reduction in energy consumption were identified and discussed during the energy audit.

There have been no previous energy audit reports to incorporate in this report. This audit can therefore be used as a baseline study to establish energy consumption and efficiency for this site. This data can then be used to assess future energy programmes.

The electricity invoices were made available for the purpose of this report. Also made available was an excel spreadsheet detailing the diesel and kerosene. At the end of the site visit a meeting was convened with Mr. Ken Doran.

During the site visit, a list of potential items to be investigated was considered to this particular site. The list of items was taken from Appendix III – Energy Audit Checklist outlined in the Guidance note on Energy Efficiency Auditing published by the EPA. The following topics were determined to be relevant to the existing facility.

- *Energy inputs*
- *Buildings*
- *Space Heating*
- *Air Conditioning & Ventilation*
- *Domestic hot water*
- *Lighting*
- *Electrical power*
- *Waste*

As part of the audit, energy efficiency measures already in place at the site were noted. These are summarised in Section 4.5.

The audit period covered is from March 2008 to April 2009. Waste Acceptance figures for the AES facility at Portlaoise indicate that the energy consumed during the audit period is considered to be representative of the full production capacity of the facility at this time.

4.2 Main Energy Consumers at the Facility

Energy consumption at the site can be divided into three main types:

1) *Electricity to power the administration buildings, convective heaters, CCTV cameras, kitchen appliances, air conditioning units, water coolers, water heaters.*

2) *Kerosene for domestic heating in the administration building*

3) *Diesel (Yard Diesel) to power the mobile plant unit, power tools, generator that powers the main processing building, generator that powers the bin washing machine*

4.3 Amount of Energy Consumed at the Facility

The significant energy inputs into the existing facility are electricity supplied by ESB, diesel and kerosene supplied by EMO and Sutton Oil Ltd. Table 4.1 (a-c) below outlines these inputs.

Figure 4.1 Percentage Distribution of Energy Costs for the AES facility at Portlaoise during Audit Period Apr '08 to Mar '09

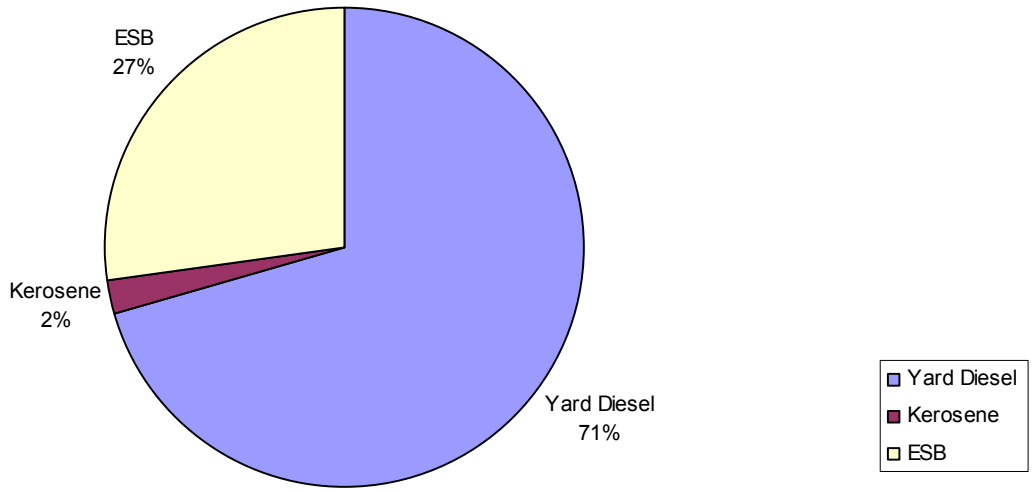

Table 4.1 (a) Electricity Usage Period			
Electricity Use Period	**Cost per unit (c/kWh)**	**Total units (kWh)**	**Total cost (€)**
21 Mar 2008 – 17 May 2008	€0.1610 €0.1450	7598 3729	1223.28 540.28
18 May 2008 – 16 Jul 2008	€0.1610	7052	1135.37
17 Jul 2008 – 17 Sept 2008	€0.1610 €0.1902	1757 5626	282.88 1070.07
18 Sept 2008 – 17 Nov 2008	€0.1902 €0.1713	7598 1995	1445.14 341.74
15 Nov 2008 – 20 Jan 09	€0.1902 €0.1713 €0.1899 €0.1711	6157 18957 2620 8067	1171.06 3247.33 497.54 1380.26
21 Jan 2009 – 20 Mar 2009	€0.1899 €0.1711	7729 24918	1467.74 4263.47
Totals		103803	€18,066.16

Table 4.1 (b) Yard Diesel Usage			
Yard Diesel	**Cost per litre**	**Total litres**	**Total cost (€)**
April 2008	0.64	4,983	3,189.12
May 2008	0.68	8,566	5,824.88
June 2008	0.71	4,124	2,928.04
July 2008	0.78	4,124	3,216.72
August 2008	0.82	4,150	3,403
September 2008	0.71	9,098	6,459.58
October 2008	0.67	5,100	3,417
November 2008	0.63	10,744	6,768.72
December 2008	0.54	8,994	4,856.76
January 2009	0.38	6,624	2,517.12
February 2009	0.38	6,172	2,345.36
March 2009	0.36	4,997	1,798.92
Total		77,676	46,725.22

Table 4.1 (c) Kerosene Usage			
Usage Period	**Cost per litre**	**Total units litres**	**Total cost (€)**
14/04/08	60 cent	981	€589.68
05/12/08	52 cent	962	€504.17
09/03/09	33 cent	972	€316.78
Total		2,915	€1410.63

Based on the above figures the total energy bill for the site was €66,202 over the audit period. As shown in Figure 4.1, the electricity bill accounts for €18,066 or 27% of the total cost. Diesel accounts for €46,725 or 71%.

4.4 Emissions Summary

Estimates of carbon dioxide (CO_2) produced by facility operations are based on the energy consumption information in Table 4.1 (a-c) and are shown in Table 4.2. Figure 4.2 shows the percentage of CO_2 produced (direct and indirect) by consumption of the individual energy types at the site. As shown in Figure 4.1, diesel represents 71% of the total cost of energy at the site. It is also the main CO_2 producer at the site at 75% as shown in Figure 4.2 below.

Figure 4.2 Percentage Distribution of CO_2 Produced by Individual Energy Users at AES Portlaoise

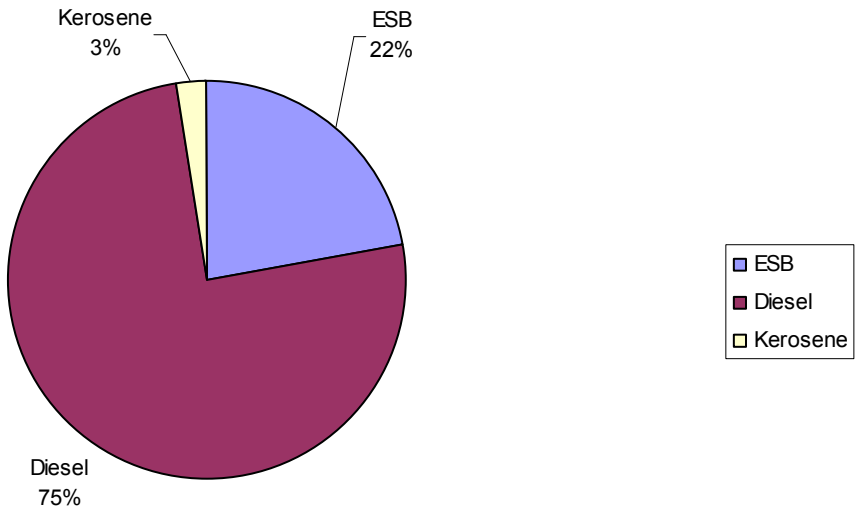

Table 4.2 Estimates of Carbon Dioxide Produced by Facility Operation			
Fuel	**Units (kWh)**	**Conversion Factor**	**CO_2 Produced (kg)**
Electricity	103803	0.601 kg CO_2 / kWh [1]	62,385
Diesel	77,676	2.7 kg CO_2 / lt [2]	209,725
Kerosene	2,915	2.4 kg CO_2 / lt [3]	6,996

[1] Sustainable Energy Ireland, Emission Factors 2006 (average value). This is an indirect emission from the site

[2] Smith, A. Browne, K., Ogilvie, S., Rushton, K., Bates, J., (2001*) Waste Management Options and Climate Change. 2001,* European Commission: Luxembourg. P. 224

[3] A Primer on Green house Gas Emissions from Energy and Transportation: http://www.klima.ph/ghg_calculator/primer/primer.html

4.5 Energy Savings Measures Installed to Date

The following energy efficiency measures are in use at the site:

- *There are timers on the external lightening*
- *There are skylights in the waste processing building and in the picking deck which reduce lighting usage and costs*
- *There are timers on the heating within the administration building*
- *Routine maintenance and upkeep of machinery*
- *Surge protection on the processing line equipment*
- *Rain water harvesting and storage from the roof of the processing building*

The weather conditions on the day of auditing were wet. The outdoor temperature was 10°C. The indoor temperature range was between 9°C and 19°C. The site audit visit was carried out between the hours of 10am-5pm.

4.6 Basic Energy Savings

Based on implementation of low cost management systems, typically it is possible to save between **2 to 3% of a facility's energy costs (Sustainable Energy Ireland), this could equate to up to €1,986 for AES Portlaoise**. Reductions are not necessarily associated with technical changes, and therefore financial savings can be made as a result of better organisation and management of improved economic efficiency.

5.0 ELECTRICITY

5.1 Energy Supply

The AES facility at Portlaoise has a maximum import capacity of 15kVA (kilovolt-Ampere). The site is set up with a general purpose tariff which is suitable for small businesses. There is a reduced unit price charged if the usage exceeds a daily usage of 131 units.

5.2 Consumption

The AES facility at Portlaoise consumed a total of 103,803 kWh (kilo Watt Hours) during the audit period of March 2008 to March 2009.

Electricity supply form the ESB is used to power the external lightening, domestic lighting, Domestic appliances; convective heaters, CCTV cameras, kitchen appliances, air conditioning / dehumidifier units, water coolers, water heaters and the wheel wash.

However the power for the on-site processing building is supplied from a 360 kVA generator which is powered with diesel.

5.3 Maximum Import Capacity (MIC)

The MIC is the level of electrical capacity agreed between the business owner and ESB network. The AES facility at Portlaoise has a contracted MIC value established in their connection agreement. A site's MIC value represents the extent to which the transmission network has been designed to serve the consumer and places an upper limit on the total demand that a consumer can place on the network. The MIC value for the AES facility at Portlaoise is 15 kVA. If the MIC is too high a higher PSO levy than necessary is charged. If the MIC is too low for a facility's needs, technical/safety problems can occur for the business. Unauthorised use charges will be incurred to discourage use above the MIC.

5.4 Recommendations

Based on the current KVA the account is at optimal tariff, the only other tariff available would be the General Purpose Nightsaver tariff. However to benefit form this tariff AES would need to be using at least 10% of its total usage between the hours of 12am to 9am (Summertime) and 11pm and 8am (Wintertime).

Recommendations to help improve energy efficiency include:

- Upgrade the canteen and office appliances to A-grade to improve energy efficiency
- Power off all office equipment overnight
- Switching off or placing PC monitor's on standby over lunch and any other time when not in use. (Two thirds of the energy used by a typical PC is consumed by the monitor).

6.0 Lighting

6.1 Audit Observations

Lighting is supplied in the processing building, administration offices, weighbridge offices and in exterior areas of the site. Fluorescent lights are mainly used to illuminate the office and canteen interiors (58W). The lightening in the processing building and the picking deck area was supplied by halogen lamps (240 Watt).

Floodlighting is used to light the exterior of the building. (240W and 400W lights) The external lightening was off at the time of the audit and are operated on a demand basis. All external lightening is on a timer and is normally only required during the winter months.

The lighting has not been assessed to determine if illumination is sufficient for work practices, however the area was observed to be adequately light during the audit.

It was noted that, although no formal procedure has been out into place to ensure that lights are switched off after use, lights in most of the unoccupied rooms was found to be off.

Also noted was the absence of sensors for any of the indoor lights. In addition, the external lighting is on a timer switch, they do not contain photodiode sensors which would aid additional control and save energy on exterior illumination.

It was also noted that the skylights in the processing building were not clean on the day of the audit. Clean skylights would optimise the availability of natural light and reduce the requirement for lightening in the processing area.

There is no signage in place to remind employees to switch off lights.

6.2 Recommendations

Recommendations to help improve energy efficiency include:

- Assess the feasibility of replacing the lights with energy saving alternatives. A low energy lamp gives the same light output but consumes 80% less electricity and can last 10 times longer.(Ref: ESB report: Energy Efficiency Made Easy)
- Access the feasibility of replacing the lights in the processing building with energy saving alternatives which contain daylight linking sensors to harness the daylight available in the building through the skylights and doors. Switching to lights of this kind can significantly reduce the connected load and increase lighting levels (ref: http://www.patinalighting.ie/applications/index.php)
- Access the feasibility of installing occupancy sensor lighting in some areas of the facility, such as the toilets and canteen areas. Occupancy sensor lighting can provide savings of between 10% and 80%.(Ref: ESB Report: Energy Efficiency Made Easy)
- Clean skylights on a regular basis to optimise availability of natural light into the main production building. Reflectors and louvers which are not cleaned on a regular basis will reduce light output by 20%. (Ref: ESB report: Energy Efficiency Made Easy)
- Standard fluorescent lamps should be replaced after 8,000 hours of use as old lamps give about 30% of full output (Ref: ESB report: Energy Efficiency Made Easy)
- A simple check list created for each building, with a designated person or persons on a rota could perform routine visual checks on light fittings at no financial cost to the company; this would demonstrate good practice and raise awareness about energy efficiency
- Report action items to a co-ordinator
- Create check sheets, for convenience, for specific areas should be drawn up and be filed in a central documentation area for review
- Although it appears that good practices are in place it is recommended that light switches be clearly labelled with notices to encourage regular energy saving and the staff energy awareness programme discussed in the following sections should stress the importance of switching off lights as a way to reduce energy use.
- Access the feasibility of long life energy bulbs in the light fixtures.

7.0 Hot Water

7.1 Audit Observations

The AES facility at Portlaoise has a number of manually operated hot water boilers in its buildings. Each of these hot water boilers is 1200W and they are all manually controlled. In some instances the boilers were switched off at the time of the audit.

7.2 Recommendations

Recommendations to help improve energy efficiency include:

- Boil only the minimum amount of water and use tight fitting lids
- Ensure that the boiler is well insulated so that water stays hotter for longer
- Install a timer device and a thermostat and identify when hot water is required for the canteens.
- Switch off the boiler at night

8.0 Heating

8.1 Audit Observations

The administration building and canteens are heated by manually operated 1500-2000W convective heaters. There is currently no programme in place at the facility to audit heating within the buildings. In most of the unoccupied rooms, the heating was found to be off. However, heating was found to be on in some unoccupied areas such as the canteen and the door was found to be open, which was an unnecessary use of energy.

The heaters in the administration building are on timer controlled devices. Each timer switch would normally be manually set and controlled by the occupants of the room. This needs to be reviewed. In addition, there are no thermostats on any of the radiators at the facility.

The administration building is supplied by heading form a kerosene boiler which was out of operation at the time of the audit, due to a breakdown in the boiler. The kerosene boiler supplies 5 radiators in the main administration building. The heating of this building was provided by 2000W convection heaters on the day of the audit.

8.2 Recommendations

Recommendations to help improve energy efficiency include:

- Use electronic thermostats in preference to mechanical ones as they provide a faster response to changing temperatures
- Consider have standardised heating hours on timers
- Reduce heating during non-working hours (bank holidays or weekends) by ensuring that all convection heaters are turned off.
- Reducing the heat setting by 1°C can save up to 8% on energy costs (Ref: ESB report: Energy Efficiency Made Easy)
- Ensure that heat energy escape is minimised by closing doors and windows and insulating non-insulated areas. Up to 20% heat can be lost through an un-insulated ceiling. Floor insulation is just as important. (Ref: ESB report: Energy Efficiency Made Easy)
- Regular maintenance of the kerosene boiler will ensure that it is optimal. (may include testing of combustion efficiency by means of measuring the percentage CO_2 in the flue gases). Regular maintenance shall also ensure that the boiler is not susceptible to break-down.

9.0 DIESEL

9.1 Supply

Yard Diesel

The yard diesel was supplied by Chevron Ireland Ltd and Suttons Oil Ltd. It is used to power the mobile plant and the generators (x2).

The electricity for the on-site processing building including lighting, sorting lines, trammel, conveyors and lines is solely supplied by an on-site generator (360 kVA).

The generator was purchased and is serviced by Mc Cormack Mc Naughton based on the hourly usage of the generator. The generator was newly purchased at the time of the audit and was in good condition.

There is a second diesel generator (25KVA). This generator is rented from McCormack Mc Naughton and is serviced regularly based on hours of use. (Last serviced on the 10/06/08)

9.2 Consumption

The facility consumed 77,676 litres of diesel for the audit period. This includes diesel for the generators and mobile plant.

The cost of this was €46,725 during the audit period of March 2008 to March 2009. Diesel accounts for 71% of the total energy spend.

It was not possible to separate the costs of running the diesel generator and cost of running the mobile plant in the yard. However it would be cleaner in the long term to power the processing building from the ESB electricity supply rather than the current fuel (diesel), based on the estimated CO_2 content of electricity and CO_2 content of Diesel.

9.3 Recommendations

Recommendations to help improve energy efficiency include:

Mobile Plant including trucks

- Switching off engines when vehicles not in use
- Do not leave vehicles/machinery idling
- Reduce unnecessary revving up of engines
- Routine servicing of vehicles to ensure optimum operation
- Consider alternatives fuel sources including renewable energy sources and ones with incentives and grant schemes attached
- Standardising truck routes to ensure that an efficient route is taken between the destinations.

Diesel Generators

- Routine servicing of vehicles to ensure optimum operation
- Consider a long-term solution of changing from the diesel generator to an electricity supply from the ESB to power the processing building.
- Consider placing the bin washer (which is powered by the 25KVA diesel generator) on a cycle time.

10.0 KEROSENE

10.1 Supply

Kerosene was supplied by Chevron Ireland Ltd and Suttons Oil Ltd. It is used as domestic heating oil in the administration building.

10.2 Consumption

The facility consumed 2,915 litres of kerosene for the audit period. The cost of this fuel was €1,410 during the audit period of March 2008 to April 2009. This accounts for a very small percentage (>1%) of the total energy spend. Below are a number of recommendations to help improve energy efficiency with respect to kerosene usage at the site.

10.3 Recommendations

Recommendations to help improve energy efficiency include:

- Use electronic thermostats in preference to mechanical ones as they provide a faster response to changing temperatures
- Consider fitting all heaters with timers
- Reduce heating during non-working hours (bank holidays or weekends)
- Reducing the heat setting by 1°C can save up to 8% on energy costs (Ref: ESB report: Energy Efficiency Made Easy)
- Ensure that heat energy escape is minimised by closing doors and windows and insulating non-insulated areas. Up to 20% heat can be lost through an un-insulated ceiling. Floor insulation is just as important. (Ref: ESB report: Energy Efficiency Made Easy)
- Routine servicing to ensure optimum operation

11.0 ENERGY MANAGEMENT AND REPORTING SYSTEMS

11.1 Reporting/Performance Management

At present there is no documented energy reporting system or policy in place at the site, with the utility bills forming the only basis for energy reporting/performance management. The consumption of electricity, kerosene and diesel is traceable by means of billing. However management have began to purchase back outsourced trucks in an attempt to control costs and energy usage on the fleet of trucks. Although it is not documented, an operational maintenance programme of on-site plant to help improve the efficiency of equipment at the facility has been put into place.

11.2 Monitoring and Targeting

There is currently no automated Monitoring and Targeting system in place at the site. Monitoring of energy use helps to identify waste and has other benefits such as the ability to spot the deterioration of machine performance. The installation of a monitoring and targeting system will also assist in maintaining costs for energy at as low as possible a level. The monitored levels of usage of diesel, kerosene and electricity can for a given period of time be directly related to productivity.

The advantage of Monitoring and Targeting is that it is the best defence against avoidable waste occurring at random and remaining undetected, which a one-off survey would miss. Monitoring and Targeting works by combining regular consumption data (usually weekly or monthly) with corresponding data on production throughput, weather or other driving factors. The deviation between actual and expected consumption indicates the extent of any unexpected loss, which can then be converted into implied cost in order to establish significance. This system can also be used to evaluate the impact of energy saving actions or faults in equipment and its operation and set realistic targets for improvement.

Part of an effective Monitoring and Targeting System is the establishment of a representative energy performance indicator, which can be expressed as:

Energy per unit produced = energy used / saleable product
or
Product per unit energy = Product (Steel) / energy used

These are simple means of assigning energy use to some unit of output and do not necessarily mean that energy is related to output, as in some cases some or all of a facility's energy is independent of production (e.g. a facility's fixed energy component)
.

11.3 Staff Involvement/Training

There is currently no specific staff training at the site directed at reducing on-site energy consumption.

11.4 Matrix Assessment

As part of the energy audit, the site's energy management system was reviewed against best practice. This involved comparison of the existing activities at the site against the energy management matrix included in Appendix II of the EPA's Guidance note. Level 4 of the matrix represents Best Practice in the field. It is recommended that site operators should strive to develop their energy management systems on a prioritized basis as part of a continuous and cyclical process of improvement.

A comparison of existing site practice and best practice is outlined in the matrix table overleaf.

Energy Management Matrix

LEVEL	ENERGY POLICY	ORGANISING	MOTIVATION	INFORMATION SYSTEMS	MARKETING	INVESTMENT
Level 4	Energy policy, action plan and regular review have commitment of top management as part of environmental strategy	Energy management fully integrated into management structure. Clear delegation of responsibility for energy consumption	Formal and informal channels of communication regularly exploited by energy manager and energy staff at all levels	Comprehensive system sets targets, monitors consumption, identifies faults, quantifies savings and provides budget tracking	Marketing the value of energy efficiency and the performance of energy management both within the organisation and outside it	Positive discrimination in favour of 'green' schemes with detailed investment appraisal of all new-build and refurbishment opportunities
Level 3	Formal energy policy, but no active commitment from top management	Energy manger accountable to energy committee representing all users chaired by a member of the managing board	Energy committee used as main channel together with direct contact with major users	M&T reports for individual premises based on sub-metering, but savings not reported effectively to users	Programme of staff awareness and regular publicity campaigns	Same pay back criteria employed as for all other investment
Level 2	Un-adopted energy policy set by energy manager or senior departmental manager	Energy manager in post reporting to ad-hoc committee, but line management and authority are unclear	Contact with major users through ad-hoc committee chaired by senior departmental manager	Monitoring and targeting reports based on supply meter data. Energy unit has ad-hoc involvement in budget setting	Some ad-hoc staff awareness training	Investment using short-term payback criteria only
Level 1	An unwritten set of guidelines	Energy management is the part-time responsibility of someone	Informal contacts between engineer and a few users	Cost reporting based on invoice data. Engineer compiles reports for internal use within technical department	Informal contacts used to promote energy efficiency	Only low cost measures taken
Level 0	No explicit policy	No energy management or any formal delegation of responsibility for energy consumption	No contact with users	No information system. No accounting for energy consumption	No promotion of energy efficiency	No investment in increasing energy efficiency in premises

11.5 Recommendations

(1) It is recommended that AES Portlaoise initiate an in house awareness training programme for all staff to raise consciousness of energy issues. A small contribution from staff towards energy savings can contribute greatly to overall efficiency in general.

(2) It is recommended that a Monitoring and Targeting System be installed at the site to assist in establishing energy costs attributable to the individual energy consumers at the site. This will allow targeted reductions in energy use at the site and should lead to reduced costs and environmental effects.

(3) As part of the EMS for the facility a representative energy performance indicator should be developed and tracked to determine if energy efficiency at the site is improving. This would be linked to the Monitoring and Targeting System recommended above which would allow the costs of the energy supplies to be monitored and the costs for the same over given periods to the attributable to productivity.

12.0 ENERGY PERFORMANCE OF THE SITE

The standard approach to assessing the energy performance of the site is to investigate the appropriate energy performance indicators. In this case, the site energy performance is generally good and the management at the site has actively demonstrated a desire to improve energy performance through operational practices at the site (e.g. the use of timers on the heating and outdoor lighting etc).

However, it is possible to implement a series of recommendations as previously outlined which will assist in improving energy performance at the site. The most important of these is the Monitoring and Targeting program. Correlation of accurate energy use figures with the level of occupancy, production demands, time of day and external weather will aid in the development of a more accurate picture of the sites activity, and also monitor the effectiveness of the planned efficiency measures as well as those already in place.

13.0 COMMENTS AND CONCLUSIONS

Energy consumption has previously been recorded but an in-depth analysis of usages has not been performed at the AES facility in Portlaoise. However, the company has demonstrated initiative to reduce energy consumption on an environmental and financial basis. Based on the Energy Audit there are a number of comments on the site as a whole.

Monitoring of energy use for diesel, kerosene and electricity will be very beneficial for the company. When the facility understands where it lies in terms of energy consumption and become aware of the need to monitor energy users at the site improvements and targets are realistic and achievable.

AES Portlaoise should consider the potential for a permanent move from diesel generated power from their 360KVA generator to electricity.

In addition consideration should be given to monitoring and improving on the existing infrastructure at the site. All the office buildings are designed to be temporary building and would not be very energy efficient (poor insulation and poor heating distribution systems. AES Portlaoise should review the condition and energy efficiency of the buildings at their facility and implement improvements as part of their annual performance objectives.

Although not documented, it was evident from the audit that staff takes responsibility for lights, machine maintenance and general energy savings that will make a difference in the long-term.

As there is no explicit policy set out as yet, the company is showing to be low in the matrix averaging out around level 2. The energy management matrix indicates that management should initiate policy that will drive an energy management programme for the facility.

It is recommended that the results of this audit are implemented over a reasonable time frame and are prioritised as part of the annual Targets and Objectives.

Appendix IV

Accident Prevention & Emergency Response Procedure

Title **General Emergency Preparedness & Response**

Purpose: To identify the potential for, and to respond to, accidents and emergency situations, and to prevent and mitigate the environmental impacts that may be associated with them.

Scope: The Scope of this procedure is the application of the Environmental Emergency Plan

References:
EP 5.0 Emergency Preparedness and Response
EPL 5.1 Emergency Contact List
EP 6.0 Environmental Incident Investigation and Reporting
EP 7.0 Non Conformance Procedure
EP 8.0 Corrective and Preventive Action Procedure
Emergency Plan
Safety Statement
Material Safety Data Sheets

Incident Contact List:

Emergency Contact List for AES Portlaoise			
Service / Agency	**Address**	**Telephone Numbers**	**Fax / e-mail**
EPA Headquarters	Johnstown Castle Estate Wexford	053 9160600 1890 335599	053 9160699 info@epa.ie
Laois County Council	Aras an Chontae, Portlaoise, Co. Laois	057-866400	057-822313
Southern Regional Fisheries Board	Anglesea Street Clonmel, Co. Tipperary	052-80055	052-23971 enquiries@srfb.ie
Eastern Regional Fisheries Board	15a Main Street, Blackrock, Co. Dublin	01-2787022	01-2787025 info@erfb.ie

Procedure:

1. An Emergency Plan is prepared and maintained by AES Portlaoise. This Plan details any emergency situation which could occur on site and the proposed response should this emergency occur. The Emergency Plan details procedures for the following occurrences:

Reference	Description
ERP 02	Spill Clean-up Procedure
ERP 03	Fire / Explosion Procedure
ERP 04	Malicious Damage Procedure
ERP 05	Unforeseen Emergencies

2. Should an emergency situation occur, the relevant response procedure documented within the Emergency Plan is implemented. Each procedure details the emergency situation, the proposed response should this emergency occur and the potential environmental impacts of this occurrence.

3. The Site Manager shall assume the role of Site Incident Controller, with responsibility for
   (i) assessing the scale of the incident
   (ii) informing emergency services
   (iii) directing rescue and fire-fighting operations.

   In the absence of the Site Manager, the Deputy Site Manager shall assume the role of Site Incident Controller.

4. Following an emergency, the Site Manager (or in his/her absence Deputy Site Manager) shall record the details of the incident. Environmental Incident Investigation and Reporting Form EPF 6.1 shall be completed which is located within the procedure for Environmental Incident Investigation and Reporting (EMS Environmental Procedure EP 6.0). Following the environmental incident, appropriate procedures shall be implemented accordingly i.e. Environmental Incident Investigation and Reporting Procedures EP 6.0, Environmental Non-Conformance Procedures EP 7.0 and Environmental Corrective and Preventative Action Procedure EP 8.0.

5. This procedure shall be reviewed by the Environmental Management team, annually or after the occurrence of an emergency situation. Additional procedures may be prepared as identified by environmental reviews/audits, environmental compliance monitoring reports, personnel during routine working hours or other communications which bring potential emergency situations to the attention of the Environmental Management Team.

6. The Site Manager shall notify the Environmental Protection Agency as soon as possible after the occurrence of an incident as per procedure EP 15.0 Reporting

7. In the case of any incident which relates to discharges to water, the Site Manager shall notify the Local Authorities and the Southern Regional Fisheries Board as soon as practicable after the incident

8. On a weekly basis, all emergency response equipment shall be checked to ensure it is provided in agreed quantities and in suitable working order.

9. In the case that an emergency situation arises outside the hours of operation, the contact details for the designated person on call are displayed on the Facility Notice Board at the entrance to the site.

Title Spill Clean up procedure

Purpose: This procedure details the steps to be taken when dealing with a spillage of a hazardous substance on site. It is required in order to:

- Protect Employees
- Protect the Environment
- Prevent Fugitive Emissions

Scope: This procedure applies to AES Portlaoise.

Procedure:

Note:

This procedure should be followed for all small, large and massive spills, which may occur.

Definitions:

Small Spill: Less than 5 litres

Large Spill: Greater than 5 litres and less than 250 litres.

Massive Spill: Greater than 250 litres

1. Hazardous materials shall be handled (loaded, unloaded and moved) by a competent person using the correct equipment and appropriate protective clothing. Appropriate precautions should be taken at all times to minimise the risk of accidental spillage.

2. In the event of a spillage occurring, the Site Manager or the Deputy Site Manager shall initially investigate the following issues:

   - How long it has been since the incident occurred.

   - Consult the relevant data sheets (Material Safety Data Sheets or otherwise) for the method of spill containment and fire control of the affected material.

   - Contact the relevant emergency response number (local fire service, police, hospital and Environmental Protection Agency telephone numbers which are detailed on the Emergency Contact List.

- Locate the nearest fire suppression system as appropriate; Dry powder extinguishers for ABC fires [wood, paper, textiles, liquid fuels and gases] Foam extinguishers for AB fires [wood, paper, textiles and liquid fuels] Carbon Dioxide [liquid fuel fires and electrical equipment].

- Note the wind direction and any possible sources of ignition i.e. naked lights, machinery, electrical fittings, and combustible material and remove them from the area.

3. Evacuate the area (for large spills if necessary)

   - The Facility Manger or any other designated person from the Emergency Response Team shall ensure that all personnel are evacuated in a calm, efficient manner. Staff should be instructed to walk briskly to their designated evacuation locations.

   - If flammable material is involved in the spill, isolate equipment and materials that may be affected.

   - If deemed necessary, the Site Manager or any other designated person from the Emergency Response Team shall instruct for the appropriate emergency services to be contacted.

4. The spillage must be contained using absorbent material, socks, booms or absorbent granules to create a secure dike. The Site Manager or any other designated person from the Emergency Response Team shall ensure that all appropriate personal protective equipment is worn [as detailed in the Material Safety Data Sheet for the spilled material(s)].

5. If the spillage emanated from a drum, position the drum so that the ruptured section is in an upwards direction, thereby preventing a further leakage.

6. Once the spill has been contained the liquid shall either be pumped, or removed into a container using non-spark shovels and labelled appropriately (contents, name and date).

7. Clean up Operation.

- Use non-sparking shovels and brushes to sweep the spilled material into containers.
- Start on the outside and work in towards the centre of the spill.
- Do not mix different types of waste.
- Drum the waste and seal the container or bag and double bag.
- Label the waste with the destination name, appropriate hazard label and name of waste giving as much information as possible on contents, plus concentrations of constituents, etc.
- If the spill occurred due to a damaged drum, place the ruptured drum into a salvage drum container, until disposal is arranged.
- Decontaminate personnel by using the washing facilities.

8. Any waste material resulting from a spillage clean-up shall be dispatched to an appropriate facility for disposal and/or recovery. If the affected material is considered hazardous, it is stored in a container and collected as soon as possible by a certified hazardous waste disposal contractor.

9. Following an emergency, the Site Manager shall record details of the incident. Following a comprehensive investigation into the source of the emergency situation, a corrective action shall be formulated as per EP 10.0

10. North Tipperary County Council and the EPA shall be informed if hazardous chemical or firewater infiltrates the drainage network.

11. Spill kits are located as follows:

Number	Location	Description
1.	Diesel Tank	Labelled Wheelie Bin
2.	Garage	Labelled Wheelie Bin

12. The Site Manager must ensure that the resultant depleted spill kit (s) is /are replenished without delay. He must also ensure that replenishment stock is re-ordered straightaway.

13. On a weekly basis all spill response equipment shall be checked to ensure it is provided in agreed quantities and in suitable working condition.

Title Fire / Explosion Procedure

Purpose: A procedure to deal with fire/explosion emergencies is required for the following reasons:

- To protect Employees.
- To protect the Environment.
- To prevent fugitive emissions.

Scope: This procedure applies to AES Portlaoise.

Procedure:

1. Employees shall only attempt to fight a fire if safe to do so. If an employee feels that they cannot tackle a fire safely and effectively, **EVACUATION OF ALL PERSONNEL IS THE PRIMARY PRIORITY**.

2. The Site Manager or Deputy Site Manager shall evacuate the area in a calm, efficient manner. All staff and contractors shall be instructed to walk briskly to the designated evacuation point.

3. In the event of a fire/explosion occurring, the Site Manager shall complete a role call to account for all employees and contractors that may be present on-site.

4. The Site Manager shall identify the location of the fire/explosion risk through dialogue with the individual who discovered the fire and shall take one of the following actions:

5. Determine whether the fire can be **SAFELY** isolated utilising the available fire fighting equipment.

6. If the fire is not controlled with the fire fighting equipment available, the local fire brigade shall be notified immediately. Local fire, police and hospital telephone numbers are detailed on the Emergency Contact List. These details are displayed at reception and within the site office. The Site Manager or any other designated person from the Emergency Response Team should;

   a. Dial 112 for emergency services
   b. Request emergency service
   c. Give details of type of emergency and phone number in case call is inadvertently disconnected
   d. Provide information requested by call recipient

e. Determine estimated time of arrival to site and communicate this information to the relevant member of ERT.
f. Hang up only when told to do so by call recipient
g. Fill out details required by emergency contact log as soon as it safe to do so.

7. If the fire can be safely isolated, locate the nearest fire suppression system as appropriate; Dry powder extinguishers for ABC fires [wood, paper, textiles, liquid fuels and gases] Foam extinguishers for AB fires [wood, paper, textiles and liquid fuels] Carbon Dioxide [liquid fuel fires and electrical equipment]. Only small localised fires should be extinguished in this manner.

8. Note the wind direction and any possible sources of ignition i.e. naked lights, machinery, electrical fittings, and combustible material and remove them from the area.

9. Personnel shall not re-enter buildings unless the Site Manager/Fire Officer deems it safe to do so.

10. Once the fire has been extinguished or the explosion controlled on site, personnel shall complete a clean-up operation as per EP05-ERP-02 using the available resources.

11. Effected areas shall be checked thoroughly in order to ensure that the fire is quenched. If the affected material is considered hazardous, it is stored in a container and collected as soon as possible by a certified hazardous waste disposal contractor.

12. Following an emergency, the Site Manager, or other designated responsible person shall record details of the incident as per EP 6.0 Incident Investigation Procedure

Title Malicious Damage Procedure

Purpose: This procedure is required in order to monitor and prevent malicious damage.

Scope: This procedure applies to AES Portlaoise.

Procedure:

1. Where any occurrence of malicious damage is noted or where persons are observed causing malicious damage, the Site Manager shall be informed as soon as is practical.

2. Where malicious damage results in a significant environmental impact, or a potentially significant environmental impact, the Site Manager shall be advised who then undertakes to minimise and repair the damage caused.

3. Persons observed causing malicious damage shall be subjected to internal disciplinary action. The Site Manager, will report external persons to the Gardaí.

4. Following an emergency, the Site Manager, or other designated responsible person shall record details of the incident as per EP 6.0 Incident Investigation and Reporting.

Title Unforeseen Emergencies and Fugitive emissions

Purpose: The purpose of this procedure is to outline the procedure to be adhered to in the event of an unforeseen emergency.

Scope: This procedure applies to the AES Portlaoise.

Procedure:

1. Following the occurrence of an incident requiring emergency action, the observant shall contact the Site Manager or in his absence most senior representative of management on-site.
2. Access situation and severity. Request emergency services where necessary. If calling for the emergency services, local Fire, police and hospital telephone numbers are detailed on the Emergency Contact List displayed within the Main Site Office, the Weighbridge Office and the Site Managers Office.

    a. Dial 112 for emergency services
    b. Request emergency service
    c. Give details of type of emergency and phone number in case call is inadvertently disconnected
    d. Provide information requested by call recipient
    e. Determine estimated time of arrival to site and communicate this information to the relevant member of ERT.
    f. Hang up only when told to do so by call recipient
    g. Fill out details required by emergency contact log as soon as it safe to do so.

3. Should the incident be determined to be capable of being addressed in-house under the guidance of the most senior representative of management on-site, the Environmental Emergency Response Team shall be mobilised paying due regard to the appropriate emergency response procedure (EP 05-ERP-1-5).

4. In the event the situation involves a Man Down, do not move the casualty until First Aid or Emergency Services give instruction.

5. Once ERT arrive at the incident, all contractors and visitors must be directed to the assembly point.

6. In the event the Emergency Services are called, ERT will cordon off the area and ensure emergency services access is clear to the incident site.

Title Unforeseen Emergencies and Fugitive emissions

7. Move all machinery not involved clear of the incident and switch engines off.

8. Once the situation is under control and has been deemed safe by the Site Manager or most senior member of management on site then the relevant report forms must be completed and the HSA informed where relevant.

9. In the event that the incident gives rise to an emission the Site Manager and the Emergency Response Team shall immediately
   - Isolate the source of any such emission
   - Carry out an immediate investigation to identify the nature, source and cause of the incident and any emission arising there from
   - Evaluate the environmental pollution if any caused by the incident
   - Identify and execute measures to minimise the emissions or malfunction and the effects thereof

6. Following an emergency, the Site Manager, or other designated responsible person shall record details of the incident as per procedure EP 6.0 Environmental Incident Investigation and Reporting. The Site Manger shall also identify and put in place measures to avoid reoccurrence and put in place any other appropriate remedial action. These corrective actions shall be documented as per procedure EP 8.0 Corrective and Preventive Action Procedure.

7. The Site Manager shall provide a proposal to the Agency for its agreement within one month of the incident occurring or as otherwise agreed by the Agency.