North Wall Generating Station

Annual Environmental Report

For the period of 1st January to 31st December 2008

Table of Contents

.

1 Introduction

1.1 IPPC Licence Number

P0579-02

1.2 Name and Location

Electricity Supply Board
North Wall Generating Station
Alexandra Road
Dublin 1

1.3 Description of Activities

The production of energy in combustion plant, rated thermal input of which is greater than 50 MW.

North Wall station has two generating units, giving a total electricity generating capacity of 272 MW_e. One of these is a Combined Cycle generating unit, based on a combustion turbine and three steam turbines, each with its own generator. The other is a simple or open cycle combustion turbine, used for peak system demands or unusual non-availability of other plants.

The Combined Cycle Combustion Turbine (CCCT or CT4) plant is made up of a combustion turbine of 118MW_e capacity and three steam turbines of 15 MW_e each giving a total capacity of 163MW_e. The open cycle combustion turbine (CT or CT5) has a capacity of 109MW_e, giving a total station capacity of 272MW_e.

The combustion turbine of the CCCT unit is normally fired on Natural Gas supplied from the national gas network. Distillate Oil is used as a standby fuel. The simple / open cycle combustion turbine normally fires on distillate due to restrictions in the gas supply network (it can only fire on gas when the other unit is not firing on gas and there is gas available).

It should be noted that during 2007 both CT4 and CT5 were out of operation for periods due to maintenance outages as follows:

- CC4 3rd October – 8th November (Scheduled Annual Overhaul)
- CT5 14th July – 23rd September (Scheduled Annual Overhaul)

1.4 Environmental Policy

See over leaf.

1.5 Environmental Management Structure and Responsibility

Environmental management is fully integrated into all aspects of management on site. The management structure is shown in figure 1.1. The Station Asset Manager is the Environmental Co-ordinator and is responsible for the co-ordination of all environmental activity at the station. The Environmental Co-ordinator, along with the Station Chemist, works with the management team to ensure that:

- The station complies with or betters the requirements of any environmental provisions specified under its IPPC licence, other licences, planning permission and environmental legislation.
- The Station's EMS is operated and maintained to the required standard.
- By way of audit and review cycle, the EMS is effective, is adaptive to changing circumstances and is delivering continuous improvement.

NORTH WALL POWER STATION
ENVIRONMENTAL POLICY

North Wall Station is a Combined Cycle Gas Turbine plant and is part of ESB Power Generation. The nominal output is 272MW, 163MW from a Combined Cycle plant and 109MW from an open cycle gas turbine plant which burn natural gas with distillate oil as back up. The station is situated on Alexandra Basin on the North Wall of the river Liffey. This is an environmentally important area with the Bull Island Nature Reserve, a designated Natural Heritage Area, nearby.
.

Our Commitment
We at North Wall power station commit ourselves to meeting customer demand for electricity in a safe, efficient and environmentally responsible manner, while recognising the technical and financial constraints within which we must operate. We strive for continual improvement in our environmental performance and prevention of pollution through the operation of the station's environmental management system. Environmental risks are minimised by the use of appropriate technologies and working procedures. Emergency procedures are in place to deal with major hazards. We are committed to maintaining our ISO 14001 accreditation and to operating within the terms of our Greenhouse Gas Permit and Integrated Pollution Prevention and Control Licence.

We carry out our activities in conformance with the policy principles outlined below:

Responsibilities and Accountabilities
Regard the achievement of the station's annual environmental targets and objectives as a line management responsibility requiring personal involvement and commitment from all management and staff.

Compliance Issues
Ensure compliance with all relevant legal requirements and conformance with all relevant in-house standards and procedures relating to environmental protection with proper monitoring, reporting and control systems in place.

Use of Natural Resources
Use environmental resources, including air, land and water in a sustainable manner and make every effort to conserve finite natural resources by efficient use and careful planning.

Energy Conservation
Minimise energy use by maintaining efficiency both in terms of our generation activity and our own usage, through a programme of assessment and review.

Waste Materials
Reduce waste generation as far as possible and ensure proper management of waste storage and disposal to minimise its impact on the environment. Evaluate opportunities to recycle and reuse waste material.

Environmental Awareness
Actively promote environmental awareness among staff through communication and training programmes and consider the impacts on and concerns of the local community as part of this training.

Suppliers of goods and on Site Services
Ensure that appropriate suppliers of goods and on site services assess the environmental impacts in their dealings with North Wall. We will also encourage responsible environmental management and insist that they conform to all relevant environmental legislation. For suppliers of on site services we will advise them of our site specific environmental policy and relevant environmental documentation.

Auditing and Reporting
Conduct regular internal and external audits to assess the level of performance and compliance with the environmental requirements of the company and regulatory bodies. Report as appropriate, to staff, regulatory bodies and other interested parties.

Review
Carry out regular reviews of environmental policies and practices in the light of experience and make improvements where appropriate. Ensure high levels of awareness of any changing legislation or applicable technologies.

Signed: _____

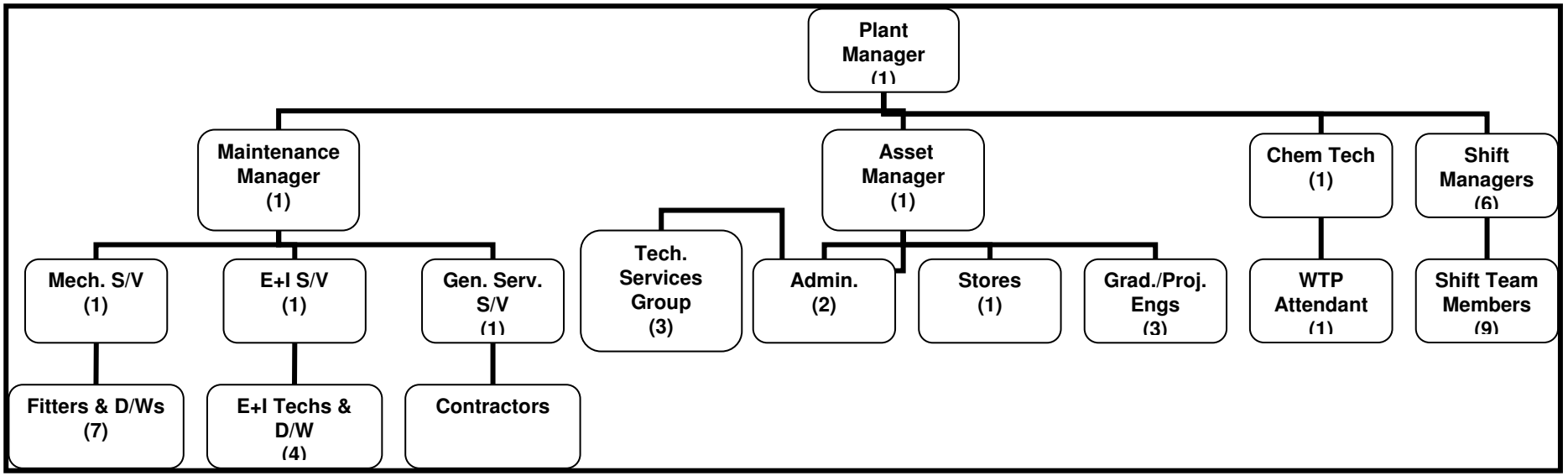
Richard Sheehan, Plant Manager, March 2009

This Policy has Corporate Body endorsement..

.

Figure 1.1 Company Organisation Chart for Environmental Management

NORTH WALL ORGANISATION CHART



Note: **The Shared Group Staff (Station Financial Officer, Chemist and Environmental Specialist, and Station Administration Officer) are not shown on the above chart. All but the SAO report directly to the Plant Manager. The SAO reports to the Station Asset Manager.**

2 Summary Information

2.1 Emission to Water

ESB North Wall has two licensed emission points discharging to the Liffey Estuary.

SW1 - Condenser Cooling Water
SW2 – Water Treatment Neutralisation Tank

In accordance with IPPC licence No. P0579-02, it is required that SW1 be monitored for Chlorine on a weekly basis and for temperature continuously. The chlorine ELV is 0.5 mg/l at the Siphon box and the ELV for Temperature is a differential of 12.5^{O}C or to remain within a Thermal Load of 150MW$_{th.}$

SW2 is monitored for pH each time effluent is discharged from the Neutralisation tank. Ammonia and suspended solids are monitored at quarterly frequencies.

2.1.1 Emission Point Reference No. SW1 - Condenser Cooling Water

Flow

The maximum volume to be emitted in any one day of 440,000 m^3 and the maximum rate per hour of 18,500 m^3 has not been exceeded in this reporting period.

The pump rating of three of the four pumps in North Wall is 4,500 m^3/hour. CW pump 3 is rated at 5,000 m^3/hour. Typically 3 pumps (including CW pump 3) are in service corresponding to a maximum flow of 336,000 m^3/day and 14,000 m^3/hour. From pump usage we can estimate that 109,176,000m3 of water was emitted from SW1 for 2008.

Temperature and Thermal Load

The emission limit value for thermal load is 150MW$_{th.}$ Based on the design of the heat recovery boiler and the steam – feedwater cycle, it is not possible for the maximum emission to be exceeded (unless all the steam is being dumped and feedwater is also being dumped) as the net thermal output of the steam cycle is 147MW$_{th}$ and no more than that can be discharged to the receiving waters.

Temperature of the Condenser Cooling Water is continuously monitored to ensure we remain within the emission limit value for the cooling water differential at SW1, which is 12.5 ^{o} C. From time to time, and for short periods, this limit is exceeded (at very low tides or when less than 3 pumps are running) but at no time in 2008 were both the thermal load and temperature limits exceeded and hence the station was fully compliant with this condition of the licence at all times.

Chlorine
Weekly grab samples are taken for chlorine analysis of the condenser cooling water. The results are tabulated on the next page.

No exceedences have been recorded for the reporting period.

Table 2.1 SW1 Chlorine Analysis

Date	Total Chlorine (mg/l)
02-January-2008	0.00
10-January-2008	0.00
23-January-2008	0.00
06-February-2008	0.00
29-February-2008	0.00
14-March-2008	0.00
31-March-2008	0.00
08-April-2008	0.20
22-April-2008	0.20
19-May-2008	0.22
10-June-2008	0.08
26-June-2008	0.10
04-July-2008	0.00
15-July-2008	0.00
06-July-2008	0.00
14-July-2008	0.00
04-August-2008	0.00
13-August-2008	0.00
21-August-2008	0.12
01-September-2008	0.10
12-September-2008	0.14
22-September-2008	0.00
01-October-2008	*Station off load from 3rd October – 8th November*
13-November-2008	0.08
25-November-2008	0.14
11-December-2008	0.00
19-December-2008	0.00
30-December-2008	0.00

Note: Variety of problems with Electrochlorination plant led to it being out of use or in low usage for long periods of time. Job cards 08-00887 from Aug 08-Jan 09 & 08-01347 from Nov 08- are evidence of this. Also job card 08-01072 to 'refurbish entire chlorination system' due to blockages and poor chlorine delivery.

2.1.2 Emission Point Reference No. SW2- Water Treatment Neutralisation Tank

Monitoring results for SW2 are tabulated below. No exceedences have been recorded for the reporting period.

Table 2.2 SW2 Monitoring Results

Date	Pump run hours	Volume m^3	pH	Ammonia (mg/l)	Suspended Solids (mg/l)
ELV		**200**	**6-9**	**10**	**300**
20 January 2008	4.00	100	8.1		
04 February 2008	5.15	129	7.4		
19 March 2008		0		0.6	0.2
17 April 2008	6.30	158	8.1		
18 June 2008	5.30	133	7.8	0.7	0.4
14 July 2008	2.15	54	8.0		
13 August 2008	5.00	125	6.7		
16 September 2008	5.15	129	7.6		
24 September 2008	4.50	113	7.9	0.3	0.2
31 October 2008	5.45	136	8.2		
29 November 2008	5.30	133	7.6		
15 December 2008		0		0.4	0.1
16 December 2008	5.00	125	6.9		
23 December 2008	6.30	158	8.1		

2.1.3 Summary of Emissions to Water

A summary of the monitoring results for mass emissions to water at SW1 and SW2 is presented in tables 2.3 and 2.4 below. Table 2.5 provides a summary of non-compliances in relation to emissions to water.

Table 2.3: Summary Table of Emissions to Water - SW1 Condenser Cooling Water

Parameter	Units	Mass Emissions						Limits
		2003	2004	2005	2006	2007	2008	
Volume	m^3	84,672,000	73,416,000	65,520,000	96,963,600	110,751,422	109,176,000	160,600,000
Chlorine	kg	4,234	4,787	1,562	4,013	6,107	5,580	16,060

Table 2.4: Summary Table of Emissions to Water - SW2 Water Treatment Neutralisation Tank

Parameter	Units	Mass Emissions						Limits
		2003	2004	2005	2006	2007	2008	
Volume	m^3	5,857	3,694	4,021	3,384	2,858	1,490	73,000
pH		7.5	7.5	7.6	7.8	7.8	7.7	6-9
Ammonia	kg	3.3	1.6	0.76	3.05	3.71	0.68	182.5
Suspended Solids	kg	174	123	35	22	12	0.33	5,475

Table 2.5: Emissions to Water Non-Compliance Summary

Date	Non-compliance	Cause	Corrective Action
	None		

Figure 2.1 SW1 Condenser Cooling Water Summary of Mass Emissions to Water

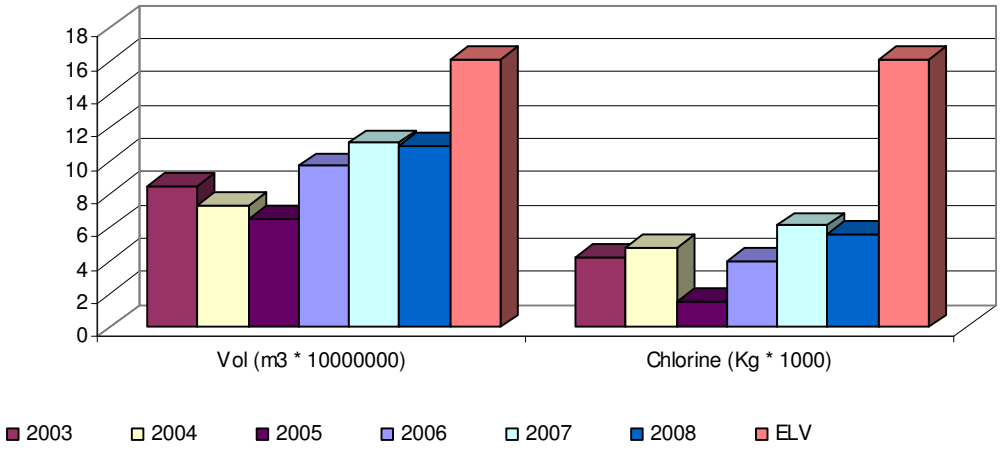
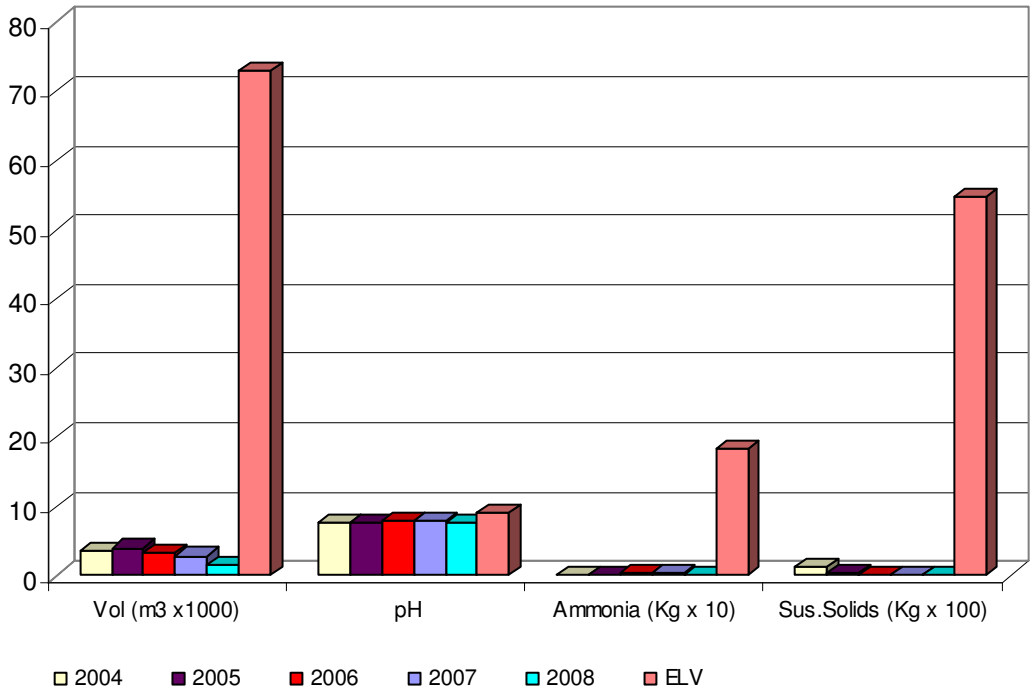


Figure 2.2 SW2 Water Treatment Neutralisation Plant Summary of Mass Emissions to Water



2.2 Emissions to Sewer

In accordance with IPPC licence No. P0579-02, Emissions to Sewer are monitored in accordance with Schedule 3 (i) having regard to Licence Conditions 3 and 7. There is one licensed emission points S1, Laboratory Drains. The current monitoring parameters for emissions to sewer are:

- Temperature
- pH
- Chemical Oxygen Demand
- Biochemical Oxygen Demand
- Suspended Solids
- Total Phosphorus (as P)
- Detergents (as MBAS)
- Oils, fats and Greases
- Sulphates

A grab sample is taken quarterly and analysed for the above parameters, the results for the quarters in the reporting period are tabulated below.

Table 2.6: S1 (Laboratory Drains) Monitoring Results

Parameter	Unit	Emission Limit Value	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Temperature °C	° C	42 ^{0} C	9.9	12.9	10.9	10.1
pH	pH unit	6-10	8.0	7.1	7.9	8.1
Chemical Oxygen Demand	mg/l	2,000	< 15	21.0	32.0	<15
Biochemical Oxygen Demand	mg/l	1,000	5.4	5.1	4.9	3.8
Suspended Solids	mg/l	1,000	<0.1	<0.1	<0.1	<1
Phosphorus (as PO_4)	mg/l	50	1.0	0.8	0.6	1.7
Detergents (As MBAS)	mg/l	100	<0.2	<0.2	<2	<0.2
Oils, Fats & Greases	mg/l	100	< 1	< 1	< 1	< 1
Sulphates (SO_4)	mg/l	400	0.9	1.5	1.9	2.5

Table 2.7: Summary Table of Emissions to Sewer

Parameter	Units	Mass Emissions						ELV
		2003	2004	2005	2006	2007	2008	
Volume	m^3	187*	187*	40*	40*	40*	40*	1460
Temperature	°C	14.3	13.4	11.9	14.2	16.3	11.0	42
pH		7.7	7.8	7.2	7.4	7.9	7.8	6-10
BOD	kg	1.19	0.74	0.14	0.24	0.22	0.19	1095
COD	kg	58.2	31.91	0.22	0.28	0.78	1.06	2190
Suspended Solids	kg	0.21	0.49	0.08	0.002	0.01	n/d	876
Total Phosphorus (As P)	kg	0.07	0.02	0.05	0.03	0.03	0.04	73
Sulphates (As SO_4)	kg	0.62	0.88	0.43	0.19	0.05	0.07	584
Oils, Fats & Greases	kg	4.68	1.66	0.25	0.26	n/d	n/d	146
Detergents (as MBAS)	kg	0.06	0.09	n/d	n/d	0.0	n/d	146

*Estimate

Table 2.8: Emissions to Sewer Non-compliance Summary

Date	Non-compliance	Cause	Corrective Action
	None		

Figure 2.3 Summary of Mass Emissions to Sewer

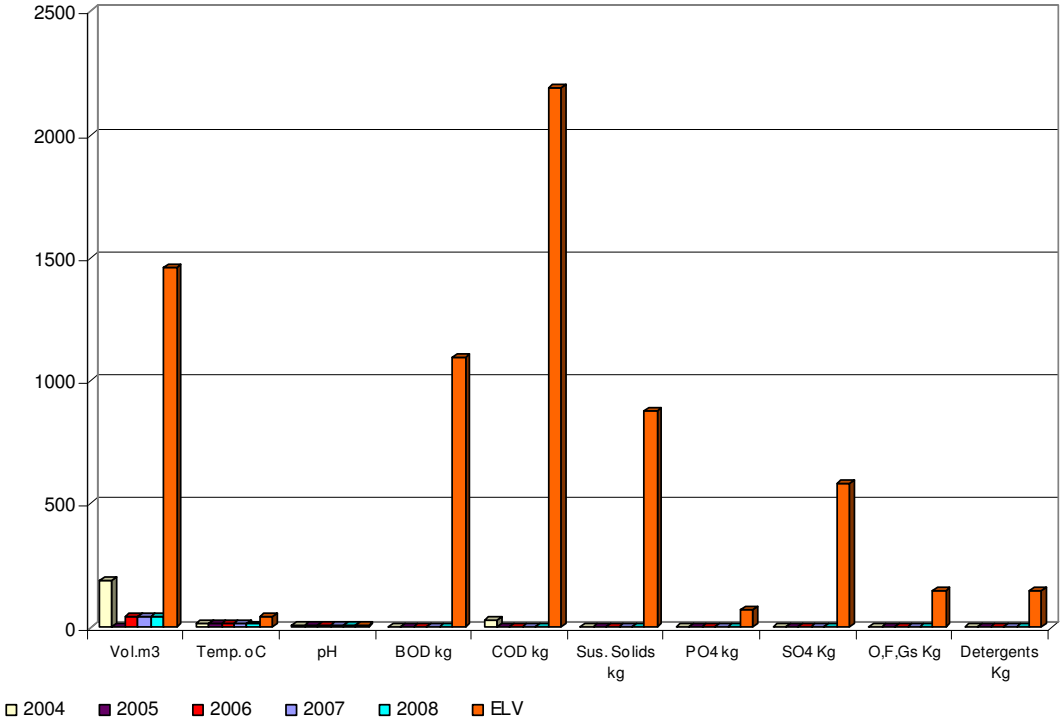


Table 2.9: Summary Table of Total Mass Emissions to Water and Sewer (Total of mass emission figures from Tables 2.3, 2.4 and Table 2.7)

Parameter	Unit	Mass Emissions						
		2003	2004	2005	2006	2007	2008	Licensed
Volume	m^3	84,678,044	73,419,881	65,524,061	96,967,024	110,754,320	109,177,530	160,674,460
Chlorine	Kg	4,234	4,787	1,562	4,013	6,107	8,208	16,060
S.Solids	Kg	174	123	35.08	22.00	12.01	0.33	6,351
Ammonia	Kg	3.25	1.55	0.76	3.05	3.71	0.68	182.5
BOD	Kg	1.19	0.74	0.14	0.24	0.22	0.19	1,095
COD	Kg	58	33	0.22	0.28	0.78	1.06	2,190
Phosphorus	Kg	0.07	0.02	0.05	0.03	0.03	0.04	73
Sulphates	Kg	0.62	0.88	0.43	0.19	0.05	0.07	584
Oils, Fats & Greases	Kg	4.68	1.66	0.25	0.26	n/d	n/d	146
Detergents	Kg	0.06	0.09	n/d	n/d	n/d	n/d	146

2.3 Emissions to Atmosphere

There are two IPPC licensed air emissions points at ESB North Wall, A1-1 at CT4 and A1-2 at CT5.

A summary of monthly mean air emissions from CT4 from January 2008 to December 2008 is shown in Table 2.10

Table 2.10 A1-1 Emissions to Air

North Wall CT4			
Month	**NOx 100% Limit mg/Nm3**	**NOx On load (mean) mg/Nm3**	**Oxygen On load (mean) %**
January	95.45	34.89	19.76
February	88.08	33.67	19.40
March	141.87	62.17	20.09
April	80.27	24.71	18.76
May	72.41	15.56	18.43
June	95.77	5.95	17.94
July	150.00	15.33	18.72
August	116.35	15.59	18.83
September	134.76	18.03	18.37
October	128.57	22.99	20.35
November	142.15	24.28	19.28
December	137.60	23.64	18.76

Compliance with Emission Limits

None of the calendar monthly or 48 hourly NOx means exceeded the emission limit values during 2008

A1-2 (Combustion Turbine CT5)

Annual testing has been agreed with the agency (see correspondence received from Tony Dolan Ref M714/ap01td-CT5). Overleaf is the report on the annual test carried out by ESB Thermal Services.

It should be noted that this test was commenced on December 19th but the plant experienced problems 10 minutes into the test and it was forced to shut down. It was not possible to address the plant fault in time to complete the test in 2006. Hence the test was performed as early as possible in 2007. There were no modification to the combustion system in the intervening period and hence the test results are indicative of the plant condition in 2006.

A number of attempts were made to carry out an emissions test on CT5 by ESB Thermal Services. These efforts were thwarted by the erratic running regime of CT5 (an Open Cylce Gas Turbine) which means the machine's running is highly dependent on wind generation, peak time load demand, network constraints and the availability of other plant on the system. It proved difficult to align availability of ESB Thermal Services with the running of the machine in the new Single Electricity Market. The requirements of the Single Electricity Market dictate that running a machine out of merit for test purposes needs to be planned and agreed well in advance with Eirgrid and entails 'forcing' the machine on for the test. There is therefore a balance between running the plant and causing 'unnecessary' pollutants versus the minute likelihood of any deterioration in combustion efficiency of the machine in the intervening period. This likelihood is

diminished further with the fact that a complete combustion inspection was carried out in 2007 which leaves the combustion hardware in a superior condition than when the last test was carried out. Notwithstanding the above, it is anticipated that a test will be carried out by ESB Thermal Services in the coming weeks, unless the Agency deems that such a test is not necessary.

Test Report – North Wall CT5 Emissions Measurement

5 February 2007

For attention of:
Majella Henchion, Environmental Co-ordinator

Location of work:
North Wall CT5, gas turbine exhaust

Thermal Performance Services personnel: John Gilmartin.

Summary description of work carried out:
Measurement of NO_x, O_2, SO_2 and CO emitted to atmosphere at Emission Point Reference Number A1-2 (Combustion Turbine CT5).

Test Equipment Used
These measurements were taken using an MCERTS accredited Horiba PG250 analyser, calibrated using certified reference materials. Copies of Gas certificates and time stamped data is available if required.

Test Schedule

Test No.	Unit	Fuel	Load (MW)	Date	Start Time	Stop Time
1	CT5	Gas	94	05/02/07	18:25	19:17
2	CT5	Gas	93	05/02/07	19:19	19:37
3	CT5	Gas	92	05/02/07	19:38	20:17

Ambient Conditions
Ambient Temperature (gas turbine inlet): 1.0°C
Ambient Pressure (station, ground level): 1,014 hPa

Results (Summary)

Test No.	Unit	Measured Values				Fully Corrected	
		NO_x	O_2	CO	SO_2	NO_x	SO_2
		ppm	% (vol)	ppm	ppm	mg/Nm^3	mg/Nm^3
1	CT5	109.6	15.6	15.0	6.6	251.3	21.0
2	CT5	107.4	15.7	13.4	6.7	247.7	21.8
3	CT5	107.0	15.7	12.7	6.4	246.8	20.6

Note: Fully corrected NO_x values are stated as NO_2 referred to 15% (vol) O_2, dry.

Discussion of Results

- North Wall station's IPPC Licence (Licence no. P0579-02) does not require continuous monitoring of emissions to atmosphere from Emission Point A1-2 (CT5). Instead, measurements must be carried out at agreed intervals to verify compliance with the Emission Limit Values (ELVs) stated in the Licence.
- In order to comply with the requirement to report NO_x fully corrected to 15% O_2, NO_x and O_2 must be measured using an approved Secondary Reference Method.
- Measurement of other components (SO_2, CO) has been carried out and the results reported for information only.
- The Emission Limit Value (ELV) for NO_x when firing on Gas is 275 mg/Nm^3. The average value measured during this tests, fully corrected to reference conditions, is 248 mg/Nm^3.

Conclusions and Recommendations

- The emissions to atmosphere from this unit are found to be in compliance with the terms of the station's IPPC Licence.
- This is a repeat of the test attempted on the 19th of December 2006 when the CT became unavailable when changing from distillate to Gas at start up.

Table 2.11: Summary Table of Emissions to Atmosphere - A1- 1 (CT4)

Parameter	Mass Emissions 2003	Mass Emissions 2004	Mass Emissions 2005	Mass Emissions 2006	Mass Emissions 2007	Mass Emissions 2008	Licensed Mass Emissions (Kg)
Nitrogen Oxides Kgs (as NO_2)	147,000	182,300	165,461	105,886	53,659	38,149[1]	514,037

Table 2.12: Summary Table of Emissions to Atmosphere - A1- 2 (CT5)

Parameter	Mass Emissions 2003	Mass Emissions 2004	Mass Emissions 2005	Mass Emissions 2006	Mass Emissions 2007	Mass Emissions 2008	Licensed Mass Emissions
Nitrogen Oxides Kgs (as NO_2)	43,000	42,600	65,688	112,258	156,191	35,175[2]	4,112,294

Table 2.13: Emissions to Atmosphere Non-compliance Summary

Date	Non-compliance	Cause	Corrective Action
	None		

[1] NWC running significantly reduced on 2007 due to increased competition and decreased overall electricity demand.

[2] Running on CT5 way down on 2007 due to increased competition and decreased overall electricity demand in addition to CT5 being bid in on distillate, making the unit one of the most expensive (and therefore least likely to run) on the Grid

2.4 Surface Water Discharge Monitoring

Surface water discharges are monitored in accordance with Schedule 5(i) of the IPPC Licence. There are three Surface Water Discharge Monitoring points SW3, SW4, SW5. A visual inspection is carried out weekly. Monthly monitoring covers pH, temperature, BOD, suspended solids, ammonia, phosphate, mineral oil and oils, fats and greases. Quarterly monitoring results for SW3, SW4 and SW5 are presented in the tables below.

Table 2.14: Surface Water Monitoring Results for Emission Point SW3

Parameter	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4
pH		7.4	7.1	7.8	7.9
Temperature	^{o}C	22.9	22.8	14.3	24.8
BOD	mg/l	9.0	6.7	7.2	6.3
Suspended Solids	mg/l	2.6	0.3	1.3	1.3
Ammonia	mg/l	0.02	0.03	0.04	0.01
Phosphate	mg/l	0.0	0.0	0.6	0.0
Mineral Oil	µg/l	<10	<10	<10	609
Oils, Fats and Greases	mg/l	2.0	4.0	<1	1.0

Table 2.15 Surface Water Monitoring Results Emission Point SW4

Parameter	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4
pH		7.9	7.8	7.8	7.8
Temperature	^{o}C	8.0	14.0	13.4	9.6
BOD	mg/l	9.6	7.6	5.3	8.1
Suspended Solids	mg/l	1.1	2.1	0.9	3.0
Ammonia	mg/l	0.01	0.01	0.01	0.01
Phosphate	mg/l	0.0	0.0	0.1	0.3
Mineral Oil	µg/l	<10	<10	< 10	< 10
Oils, Fats and Greases	mg/l	<1	3.0	<1	<1

Table 2.16 Average Surface Water Monitoring Results for Emission Point SW5

Parameter	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4
pH		8.5	8.6	9.0	9.1
Temperature	^{o}C	43	39.7	27.4	56.3
BOD	mg/l	n/d	n/d	n/d	n/d
Suspended Solids	mg/l	0.0	0.0	0.0	0.0
Ammonia	mg/l	0.14	0.22	0.1	0.01
Phosphate	mg/l	0.43	0.08	0.12	0.00
Mineral Oil	µg/	<10	3	<1	<1
Oils, Fats and Greases	mg/l	<1	<10	<10	<10

n/d: non detect

Visual Inspection: A visual inspection is also carried out weekly on SW3, SW4 and SW5. In addition the surface of chamber one in the interceptors is skimmed and checked for oil.

If oil is detected in the Interceptor, Enva Environmental will be called to site to clean the interceptors and an investigation will be initiated by the Environmental Coordinator to find the origin of the oil.

2.5 Waste Management Report

Table 2.17 Hazardous Waste Report

European Waste Catalogue Code	Description of Waste	Hazardous (Yes/No)	Quantity (t/year)	Disposal/ Recovery Code	Location of Disposal/ Recovery	Name of Waste Disposal Recovery Contractor	Waste Permit Details and Issuing authority.
13 05 07*	Interceptor Waste (This waste stream contains mainly water)	Yes	18.52	R9	Portlaoise	Enva Environmental	Enva Environmental_EPA Waste Licence No. 184-1 Waste Collection Permit No. CP D160/1A
15 02 02*	Oil Contaminated Waste	Yes	5.68	R1	Germany	Enva Environmental	EPA Waste Licence No. 184-1 Waste Collection Permit No. CP D160/1A
13 02 08*	Oil	Yes	10.5	R9	Portlaoise	Enva Environmental	EPA Waste Licence No. 184-1 Waste Collection Permit No. CP D160/1A
13 08 02*	Oily water (Waste stream contains mainly water)	Yes	12.24	R9	Portlaoise	Enva Environmental	Enva Environmental_EPA Waste Licence No. 184-1 Waste Collection Permit No. CP D160/1A
13 05 03*	Interceptor Sludge	Yes	18	D9	Dublin	Rilta	Rilta EPA Waste License No. 192-1. Waste Collection Permit No. CP D 881/6
16 07 08*	Sludges	Yes	18.14	D9	Dublin	Rilta	Rilta EPA Waste License No. 192-1. Waste Collection Permit No. CP D 881/6
15 01 10*	Steel Drums	Yes	0.61	R4	Ireland	Enva Environmental	Hegartys Metal Recycling, Ballysimon Road, Limerick Waste Permit – WP05-04 (Limerick City Council) Waste Collection Permit No. CP 47/1

15 01 10*	Plastic Drums	Yes	0.015	R5	Ireland	Enva Environmental	Leinster Environmental Clermont Business Park, Haggardstown, Dundalk Co. Louth Waste Permit No. WP2004/30 Louth Co.Co.
15 01 10*	Plastic Drums	Yes	0.04	D9	Ireland	Enva Environmental	EPA Waste Licence No. 41/1 Waste Collection Permit No. CP 33/1
16 01 14*	Coolant	Yes	5	D9	Ireland	Rilta Environmental	Rilta EPA Waste License No. 192-1. Waste Collection Permit No. CP D 881/6
16 02 13*	Monitors and TVs	Yes	0.11	R5	Ireland	KMK Metals	EPA Hazardous Waste licence No. 113-02 Waste Collection Permit No CP D183/1
16 01 07*	Used oil filters	Yes	0.26	R12,R4	Belgium	Enva Environmental	EPA Waste Licence No. 184-1 Waste Collection Permit No. CP D160/1A
16 05 04*	Aerosols	Yes	0.49	R4	Germany	Enva Environmental	EPA Waste Licence No. 184-1 Waste Collection Permit No. CP D160/1A
08 01 11*	Paint	Yes	0.6	R1,R4,R5	Northern Ireland	Enva Environmental	Environmenta and Heritage Service Licence Ref. No. LN/05/08B
16 05 06*	Mixtures of chemicals	Yes	2.949	R1 D9	Germany Ireland	Enva Environmental	EPA Waste Licence No. 41/1 Waste Collection Permit No. CP 33/1
16 05 08*	Hydrazine/ Sodium Hypochlorite	Yes	1.4	D9	Ireland	Enva Environmental	EPA Waste Licence No. 41/1 Waste Collection Permit No. CP 33/1

Table 2.18 Non Hazardous Waste Report

European Waste Catalogue Code	Description of Waste	Hazardous (Yes/No)	Quantity (t/year)	Disposal/ Recovery Code	Location of Disposal/ Recovery	Name of Waste Disposal Recovery Contractor	Waste Permit Details and Issuing authority.
20 03 01	General and Canteen waste	No	54.61	D1	Ireland	Midlands Waste Disposal	EPA Waste Licence No. 131/02 Waste Collection Permit No. CP 17/1
15 01 01	Cardboard	No	3.57	R5	Ireland	Thornton's Recycling Centre and Midlands Waste Disposal	EPA Waste Licence no. 44-2 Waste collection Permit No. CP D1/1 and EPA Waste Licence No. 131/02 Waste Collection Permit No. CP 17/1
17 04 07	Mixed Metals	No	21.04	R4	Limerick	Hegarty Metals	Hegartys Metal Recycling, Ballysimon Road, Limerick Waste Permit – WP05-04 (Limerick City Council) Waste Collection Permit No. CP 47/1
15 01 03	Timber	No	13.38	R5	Ireland	Midlands Waste Disposal	EPA Waste Licence No. 131/02 Waste Collection Permit No. CP 17/1
16 02 16	IT Equipment	No	0.14	R4	Ireland	KMK Metals	EPA Hazardous Waste licence No. 113-02 Waste Collection Permit No CP D183/1
16 02 14	CPUs, Printers and copiers	No	0.19	R4	Ireland	KMK Metals	EPA Hazardous Waste licence No. 113-02 Waste Collection Permit No CP D183/1
20 03 99	Drain cleaning waste	No	6	D9	Ireland	Rilta Environmental	Rilta EPA Waste License No. 192-1. Waste Collection Permit No. CP D 881/6
16 01 15	Coolant	No	5.5	R9	Ireland	Enva Environmental	EPA Waste Licence No. 184-1 Waste Collection Permit No. CP D160/1A

In October 2005 an Integrated Waste Management Contract was set up with Atlas Environmental (Now Enva Environmental) who hold an EPA Hazardous Waste Licence 184-1. Enva Environmental now manages most waste activities on-site and take responsibility for collection and disposal of the waste streams on the tables below. The waste contractors that Enva Environmental uses are included in the two tables below with details of relevant waste licences and waste collection permits.

Table 2.19 Transport / Collection Companies

Type of Waste	*Waste Contractor*	Address	*Waste Collection Permit No.*	*Final Destination*
General Waste and Timber and dry mixed recyclables.	Midland Waste Disposal Co.	Midland Waste Disposal Company. Clonmagaddan, Proudstown, Navan, Co. Meath.	CP D 17/1	Segregated in Midland waste and sent to the appropriate licensed facility
Paper and Cardboard	Thornton's Recycling	Kileen Road, Ballyfermot, Dublin 10.	CP D 1/1	Sent to appropriate recycling facilities by Thornton's.
Cooking Oil	Enva Environmental	Clonminam Ind. Est., Portlaoise	CP D160/1A	BIP,Birmingham
Oil Contamination Materials	Enva Environmental	Clonminam Ind. Est., Portlaoise	CP D160/1A	Lindenschmidt KG, Germany
Empty Steel Barrels	Enva Environmental	Clonminam Ind. Est., Portlaoise	CP D160/1A	Hegarty Metal Recycling
Oily Water	Enva Environmental	Clonminam Ind. Est., Portlaoise	CP D160/1A	Enva Environmental
Waste Oil	Enva Environmental	Clonminam Ind. Est., Portlaoise	CP D160/1A	Enva Environmental
Batteries	Enva Environmental	Clonminam Ind. Est., Portlaoise	CP D160/1A	Campine Recycling, Belgium
Alkaline Batteries	Enva Environmental	Clonminam Ind. Est., Portlaoise	CP D160/1A	Accurec Recycling, Germany
Inkjet Cartridges Box	Cartridge Retrieval.	Cartridge Retrieval & Sales Ltd.	No permit required.	Cartridge Retrieval
Spent Lighting	Enva Environmental	Clonminam Ind. Est., Portlaoise	CP D160/1A	Dela, Germany
Chemical waste	Enva Environmental	Smithstown Ind. Est., Shannon, Co. Clare	CP D33/1	AGR Herten, Germany Lindenschmidt KG, Germany
Oil Filters	Enva Environmental	Clonminam Ind. Est., Portlaoise	CP D160/1A	RD Recycling , Belgium

Table 2.20 Disposal/Treatment Facilities

Type of waste	Waste Contractor	Final Destination	Address	Licence Details
General Waste	Midland Waste disposal Co.	Segregated in midland waste and sent the appropriate licensed facility	Midland Waste Disposal Company. Clonmagaddan, Proudstown, Navan, Co. Meath.	EPA waste licence 131-2
Oil Contaminated Materials	Enva Environmental	Lindenschmidt, Germany for pre-treatment and incineration in AGR Herten	Lindenscmidt KG, Krombacher Str 42-46, D57223 Kreuztal-Krombach, Germany	Reg. no. E97095037
Empty Steel Barrels	Enva Environmental	Hegarty Metals	Hegarty Metal Recycling, Ltd. Ballysimon Road, Limerick	Limerick Corporation Waste Permit Ref. No. WP – 05-04
Oily Water	Enva Environmental	Enva Environmental	Clonminam Ind. Est., Portlaoise	EPA hazardous waste licence 184-1
Waste Oil	Enva Environmental	Enva Environmental	Clonminam Ind. Est., Portlaoise	EPA hazardous waste licence 184-1
Paper	Midland Waste Disposal Co.	Sent to appropriate facilities for recycling by Midland Waste	Midland Waste Disposal Company. Clonmagaddan, Proudstown, Navan, Co. Meath.	EPA waste licence 131-2
Cardboard	Thornton's Recycling	Sent to appropriate facilities for recycling by Midland Waste.	Kileen Road, Ballyfermot, Dublin 10.	EPA waste licence 131-2
Timber	Midland Waste Disposal Co.	Sent to appropriate facilities for recycling by Midland Waste	Midland Waste Disposal Company. Clonmagaddan, Proudstown, Navan, Co. Meath.	EPA waste licence 131-2
Batteries	Enva Environmental	Campine Recycling	Campine Recycling N.V Nijerheidsstraat 2 B -2340 Beerse Belgium	License: MLAV/05-173/GVDA

Type of waste	Waste Contractor	Final Destination	Address	Licence Details
Alkaline Batteries	Enva Environmental	Accurec Recycling , Germany	Accurec Recycling GmbH, Wiebagen 12-14,D45472, Mulheim Germany	Reg. No. 52.03.0606 Accu-9/99
Inkjet Cartridges Box	Enva Environmental	Cartridge Retrieval & Sales Ltd.	15 Watergate Est. Tallaght, Dublin 24	No licence required.
Spent Lightening	Enva Environmental	Dela, Germany	Dela, GmbH, Betriebsstatte Essen, Alte Landstrabe 4, 45329 Essen.	Reg. No. E11315322
Chemical waste	Enva Environmental	AGR, Germany	AGR Entsorgung GmbH RZR Herten Im Emscherbruch 11 45699 Herten Germany	Certificate No. 0409

Other waste contractors used that are not covered in the waste contract with Enva Environmental are as below

Type of waste	Waste Contractor	Final Destination	Address	Licence Details
Asbestos Resins Oil Culvert Cleaning sludges	Rilta Environmental	Various depending on type of waste	Block 402, Greenogue Business Park, Rathcoole, Co. Dublin	Rilta EPA Waste License No. 192-1. Waste Collection Permit No. CP D 886/1
Metal	Hegarty Metal	Various sites in Europe	Ballysimon Road, Limerick	Hegartys Metal Recycling Waste Permit – WP05054 (Limerick City Council)

2.6 Fuel Use and Energy Input Summary

2.6.1 Fuel Use

Table 2.21 Run hours on Natural Gas and Distillate Oil

Unit	Run Hours on Natural Gas						Run Hours on Gas Oil					
	2003	2004	2005	2006	2007	2008	2003	2004	2005	2006	2007	2008
CT4	6,626	5,946	4,320	3,261	3,166	2,279	26	8	86	6	23	37
CT5	108	190	46	428	1,152	174	260	211	369	261	0	22

Figure 2.4 Run hours on Natural Gas

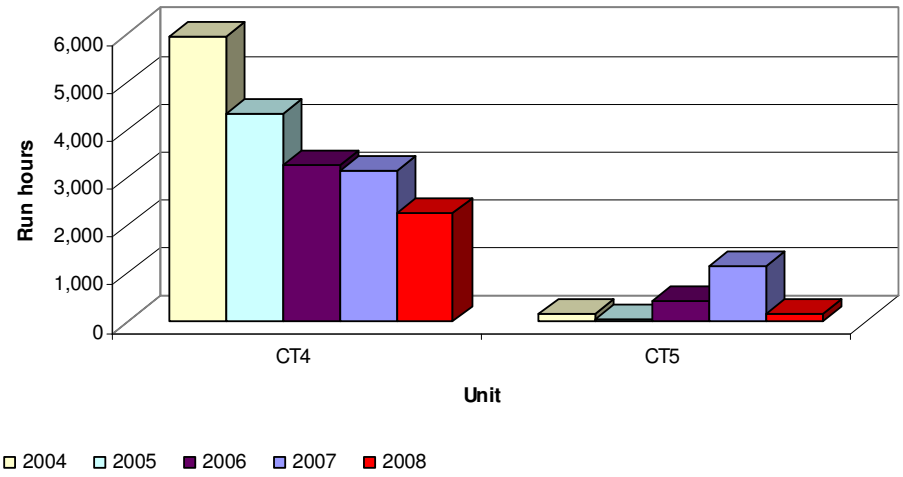
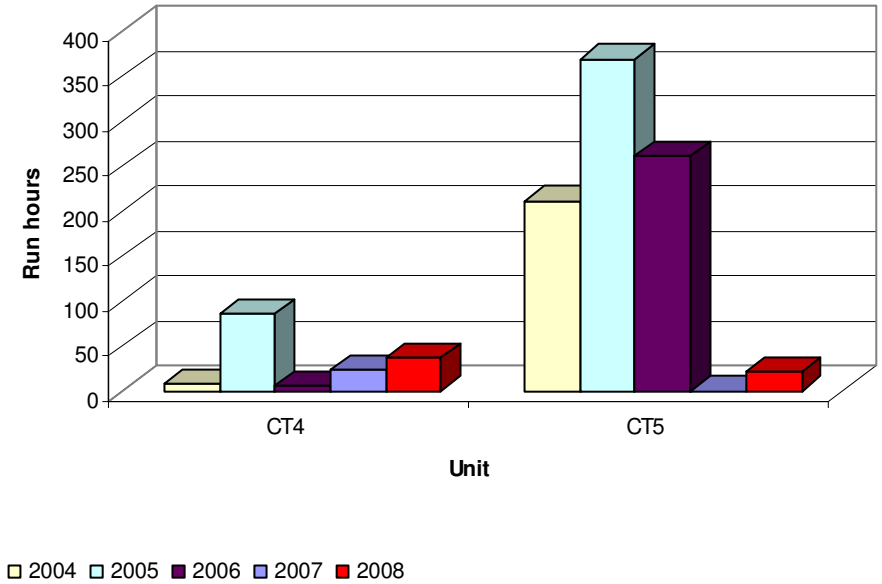


Figure 2.5 Run hours on Gas Oil

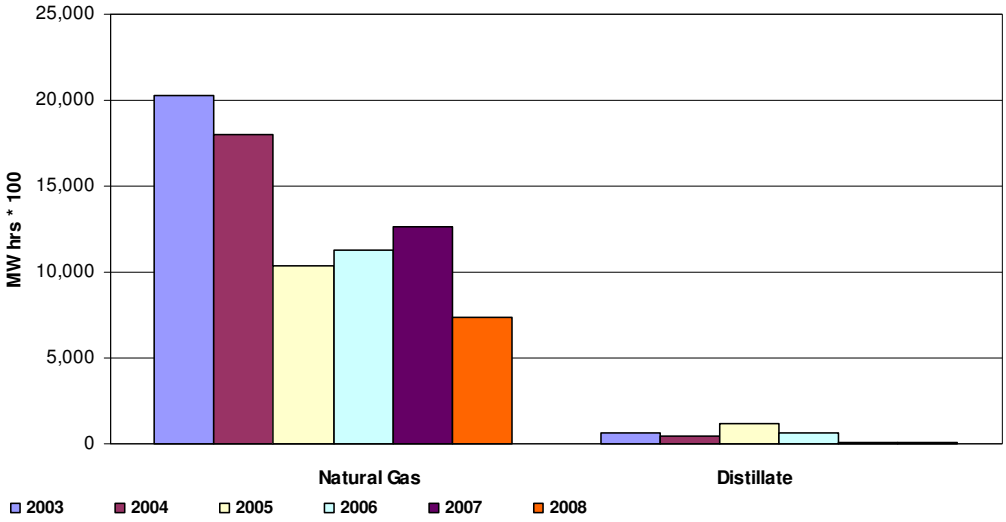


2.6.2 Energy Input

Table 2.22 Energy Consumption

Fuel	2003 (MWhrs)	2004 (MWhrs)	2005 (MWhrs)	2006 (MWhrs)	2007 (MWhrs)	2008 (MWhrs)
Natural Gas	2,029,828	1,796,773	1,034,335	1,130,865	1,261,807	735,359
Distillate Oil	66,234	46,039	115,787	66,304	4,895	6,633

Figure 2.6 Energy Consumption

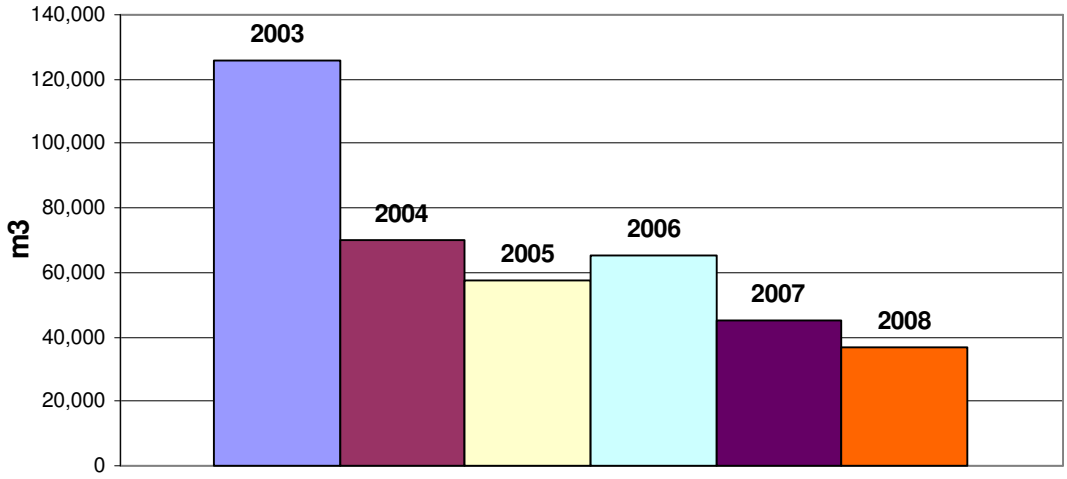


2.7 Water Consumption

Table 2.23 Water Consumption

Water Consumption m^3	2003	2004	2005	2006	2007	2008
	126,017	70,000	57,798	65,398	45,312	36,993

Figure 2.7 Water Consumption



2.8 Environmental Incidents and Complaints

2.8.1 Reportable Incidents

There were two reportable incidents in 2008 as detailed below.

Table 2.24: Reportable Incidents

Date	Incident description	Action Taken	Authorities contacted
04/01/08	Failure of temperature probe on CEMS system	Temperature probe replaced	EPA notified on 4/1/08
22/01/08	Sweep wheel failure on CEMS system	New sweep wheel fitted to system	EPA notified on 22/01/08

2.8.2 Complaints

There were no complaints during 2008

Table 2.25 Complaint Summary

Date	Category	Complaint	Investigation/Action taken	Corrective Action Required

3 Management of the Activity

3.1 Schedule of Objectives and Targets 2009 (5 Year)

Ref	Objective	Target
1	Ensure 100% compliance with IPCL	• 2009-2014: Implement and maintain the conditions of IPPCL through EMS, monitoring, reporting and implementing EMP. • By 30/10/2007, ELV for A1-1 on distillate will be 120mg/m^3.
2	Identify and implement opportunities for improvements in energy usage	• Arrive at definitive house load profile for station • Once profile arrived at, target areas of reduction (CW pumps etc.) • Reduce office energy consumption by 7.5% by 2014 • Regular analysis of house load once house load metering capability installed as part of SEM[3] implementation • 2009-2014: An energy audit will be repeated at intervals as required by the Agency to monitor effectiveness of above and keep abreast of new technologies to assist reduction. • Water usage on site: reduce water usage on site by 3% per annum.
3	Reduce the potential for discharge to surface and ground water.	• Bi-annual monitoring of groundwater will be carried out to provide an on-going record of groundwater quality migrating beneath the soil. • Structural improvements will be made to wells to improve accuracy and reliability of monitoring. • Contour maps to be determined to assess movement of groundwater across site. • Carry out regular environmental risk assessments of all potential risk areas
4	Investigate alternatives to use of hydrazine	• No alternatives / opportunities for reduction identified in 2008 investigation. Review the possibilities of alternatives in 2009.
5	To install, and implement maintenance and calibration routines for, control and monitoring equipment	• 2009-2014: Continuous maintenance and calibration of all equipment per the Schedule. Investigation into the use of PEMS in station with a view to installing by year end 2009. • Act to reduce down times of on-line monitors and set specific targets in relation to down-time management. In this regard, alternative arrangements and new technologies that come to the station's attention will be reviewed in detail. • Reduce CEMS downtime by proactive and predictive maintenance of CEMS hardware as opposed to reactive maintenance.
6	To identify improvements in waste management through ongoing assessment of waste streams and initiatives within the station to improve staff awareness.	• Waste management will remain an ongoing item for consideration at EMG meetings. • Possibility of composting to be considered for canteen waste. • Aim to increase recycled waste by 5% per annum.
7	Prevention of incidents with the potential for environmental damage and the implementation and ongoing review of contingency plans in the event of an incident.	• Emergency response procedures will be tested and reviewed annually. • Risk assessments will be carried out to address any significant environmental hazard associated with work. • Carry out plant modification / improvement projects to minimise risks of environmental damage.
8	To make continuous environmental	• Environmental procedures will be reviewed as well as being audited to prevent obsolescence and changes will be made as

[3] Single Electricity Market

	improvement in all processes on site having regard to the ongoing assessment, recording and reporting of matters affecting the environment.	required to address corrective actions as they arise. • An environmental risk assessment will take place for any plant modification. • On-going environmental training will be provided for all staff. • All complaints/incident reports shall continue to be submitted to the Agency where they arise, and summarised as part of the AER.

3.2 Environmental Management Program Report 2008

Ref	Objective	Target	Reason	Project Summary	Responsible	Due	Progress
1	To ensure 100% compliance with IPCL	Re-establish bund integrity	Ensure all bunds are holding	• Test all bunds per schedule	GS Supv. / EIT Supv.	Q2 08	2008 programme complete
2	Identify areas for improvement in energy efficiency	Investigate SEM station house load billing.	To analyse house load in site with a view to reducing same	Keep informed of SEM plans with regard to house load monitoring and billing	Env. Co-ordinator	Ongoing	This issue has been raised with PG centrally, in parallel provision for metering and analysis in 2009 station budget
3	Reduce the potential for discharge to surface and ground water.	Carry out environmental risk assessments of potential risk areas	To identify potential weaknesses in existing controls and address them.	Complete ERAs of:	Env. Co-ordinator		
				• Diesel pipelines and combustion systems		Q3 O8	
				• Steam Sets Lube Oil Systems		Q408	Complete - Lube oil cooler tube bundles replaced during recent overhaul
				• 220kV underground oil filled cables		Q3 08	
				• Chemical pipelines and storage		Q2 08	
		Correct deficiencies in existing wells	Deficiencies identified during 2007 monitoring programme	Engage contractor to redrill wells.	Env. Co-ordinator / Env. Scientist	Complete	Complete
		Achieve contour map of groundwater flow	To ascertain groundwater flow across site	Engage contractor to analyse levels and flows	Env. Co-ordinatror	Complete	Complete
4	Investigate alternatives to use of hydrazine	Keep abreast of developments in this area			Env. Co-ordinator	Ongoing	
5	Install, implement	Improve the	To ensure monitoring and	Complete testing of CT5	Plant Mgr	Complete	A decision

	maintenance and calibration routine for, control & monitoring equipment	reliability of CT4 CEMS equipment to ensure monitoring as required	reporting requirements are carried out as per IPPC License	CEMS	And Env. Co-ordinator		has been made to remove CT5 CEMS, commission CT4 PEMS
				Install on CT4 if testing OK		Q4 08	Will now be PEMS
				Finalise scheme for monitoring CT4 CEMS performance after CEMS Report changes		Q4 08	Will wait until PEMS installed before deciding on methodology
				Embed CEMS checks into maintenance meeting agenda		Complete	Complete
6	To identify improvements in waste management.	Investigate possibility of composting food waste in canteen	To reduce waste output from site and increase recycling on site	Investigate possible solutions and implement if feasible	Env. Co-ord.	Review complete, solutions to be introduced in 2009.	This was discussed during waste review with Enva, improvements consist of a compactor and canteen composter to be introduced to facility in 2009
7	Prevention of incidents with the potential for environmental damage.	Carry out risk assessments per 3 above.	See 3	See 3	See 3	See 3	
8	To make continuous environmental improvement in all processes on site	Devise action programmes to address any deficiencies found in the	To minimise the potential for adverse environmental impact	Devise remedial programmes based on the following ERAs:	Env. Co-ordinator		
				• Diesel pipelines and combustion systems		See 3	

	having regard to the ongoing assessment, recording and reporting of matters affecting the environment.	environmental risk assessments (ref. 3)		• Steam Sets Lube Oil Systems		See 3	
				• 220kV underground oil filled cables		See 3	
				• Chemical pipelines and storage		See 3	
				• Water leaking into cable tray – investigate and eliminate. Continue troubleshooting having eliminated several sources		Q2 08	This does not appear to be an issue any longer on site
		Carry out environmental efficiency audit	To seek improvements in building efficiency	• Contractor engaged to carry out environmental efficiency audit on site. Awaiting report		Audit finalised, report issued. Provision in 2009 station budget to action the items suggested in the report.	
		Consider potential elimination of lab discharge to sewer	To minimise the potential for adverse environmental impact	• Review use and consider treating effluent as a waste chemical instead of discharging through sink and sewer in conjunction with Lab upgrade work	Chemist	Q2 08	

3.3 Environmental Management Program Proposal 2009

Ref	Objective	Target	Reason	Project Summary	Responsible	Due
1	Ensure 100% compliance with IPCL	• 2009-2014: Implement and maintain the conditions of IPPCL through EMS, monitoring, reporting and implementing EMP. • By 30/10/2007, ELV for A1-1 on distillate will be 120mg/m^3.	Ensure all bunds are holding	• Test all bunds per schedule	GS Supv. / EIT Supv.	Q2 09
2	Identify and implement opportunities for improvements in energy usage	• Arrive at definitive house load profile for station • Once profile arrived at, target areas of reduction (CW pumps etc.) • Reduce office energy consumption by 7.5% by 2014 • Regular analysis of house load once house load metering capability installed as part of SEM[4] implementation • 2009-2014: An energy audit will be repeated at intervals as required by the Agency to monitor effectiveness of above and keep abreast of new technologies to assist reduction. • Water usage on site: reduce water usage on site by 3% per annum.	To increase energy efficiency and minimise wasted energy in office spaces.	Project to arrive at house load profile for station Implement findings of WYG report 2008 with respect to energy efficiency in building spaces – lighting, timers etc. Track water usage more closely and arrive at a water usage profile for plant.	Env. Co-ordinator	Q3 09
3	Reduce the potential for discharge to	• Bi-annual monitoring of groundwater will be carried out to provide an on-going	To identify potential weaknesses in existing controls and	Sign FWA for groundwater monitoring on-site	Env. Co-ordinator	Q2 09

[4] Single Electricity Market

	surface and ground water.	record of groundwater quality migrating beneath the soil. • Structural improvements will be made to wells to improve accuracy and reliability of monitoring. • Contour maps to be determined to assess movement of groundwater across site. • Carry out regular environmental risk assessments of all potential risk areas	address them.	with competent contractor and continue programme		
4	Investigate alternatives to use of hydrazine	• No alternatives / opportunities for reduction identified in 2008 investigation. Review the possibilities of alternatives in 2010.	Identify possible suitable alternatives for Hydrazine	Identify possible suitable alternatives for Hydrazine	Env. Co-ordinator/Stn. Chemist	Ongoing
5	To install, and implement maintenance and calibration routines for, control and monitoring equipment	• 2009-2014: Continuous maintenance and calibration of all equipment per the Schedule. Investigation into the use of PEMS in station with a view to installing by year end 2009. • Act to reduce down times of on-line monitors and set specific targets in relation to down-time management. In this regard, alternative arrangements and new technologies that come to the station's attention will be reviewed in detail. • Reduce CEMS downtime by proactive and predictive maintenance of CEMS hardware as opposed to reactive maintenance.	To ensure monitoring and reporting requirements are carried out as per IPPC License	Examine feasibility of PEMS in CT4 and install if feasible	Env. Co-ordinator	Q2 09 Feasibility, Q4 09 Implementation

6	To identify improvements in waste management through ongoing assessment of waste streams and initiatives within the station to improve staff awareness.	• Waste management will remain an ongoing item for consideration at EMG meetings. • Possibility of composting to be considered for canteen waste. • Aim to increase recycled waste by 5% per annum.	To reduce waste output from site and increase recycling on site	Provide composters for canteen. Arrange waste training refresher for staff	Env. Co-Ord/GSS Env. Co-Ord	Q2 09 Q2 09
7	Prevention of incidents with the potential for environmental damage and the implementation and ongoing review of contingency plans in the event of an incident.	• Emergency response procedures will be tested and reviewed annually. • Risk assessments will be carried out to address any significant environmental hazard associated with work. • Carry out plant modification / improvement projects to minimise risks of environmental damage.	To minimise the potential for adverse environmental impact	Ensure continued compliance with EMS procedures	Env. Co-ord.	Ongoing
8	To make continuous environmental improvement in all processes on site having regard to the ongoing assessment, recording and reporting of matters affecting the environment.	• Environmental procedures will be reviewed as well as being audited to prevent obsolescence and changes will be made as required to address corrective actions as they arise. • An environmental risk assessment will take place for any plant modification. • On-going environmental training will be provided for all staff. All complaints/incident reports shall continue to be submitted to the Agency where they arise, and summarised as part of the AER.	To minimise the potential for adverse environmental impact	Arrange refresher General Awareness training for staff	Env. Co-Ord	Q2 09

4 Licence Specific Reports

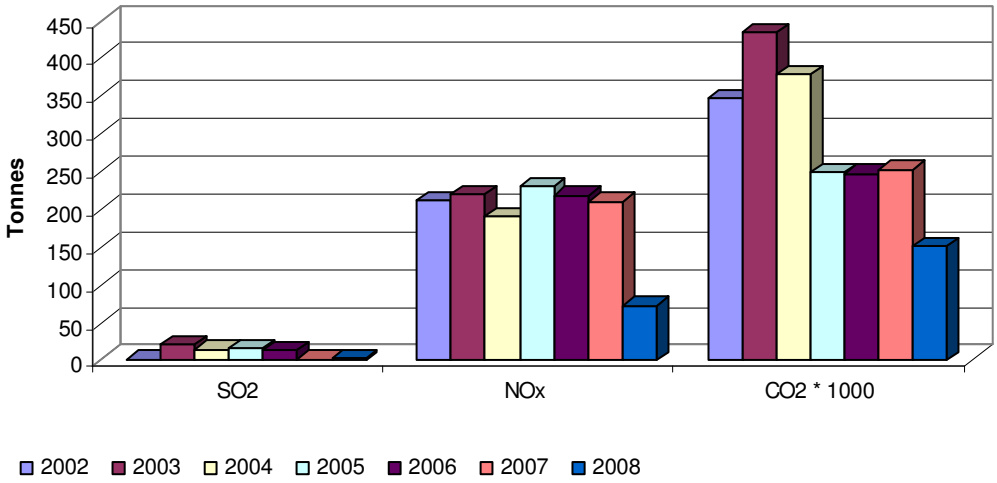
4.1 Total Annual Emissions of SO_2, NO_x and CO_2

Sulphur Dioxide and Carbon Dioxide are calculated from fuel use. Nitrogen Oxides are taken from CEMS for emission point A1-1 and calculated from the amount of MWh generated and a factor relating to the run load of the unit and test data for emission point A1-2.

Table 4.1 Annual Emissions of SO_2, NO_x and CO_2,

Parameter	2003 (Tonnes)	2004 (Tonnes)	2005 (Tonnes)	2006 (Tonnes)	2007 (Tonnes)	2008 (Tonnes)
SO_2	21	16	16	13	1.7	2.9
NO_2	220	192	231	218	210	73
CO_2	433,644	378,543	248,184	247,734	252,279	150,686

Figure 4.1 Annual Emissions of SO_2, NO_x and CO_2



4.2 Borehole Monitoring Results

In 2008 Monitoring Wells were sampled twice for analysis. The results are tabulated below.

Table 4.2 Borehole Monitoring

	Mineral Oil µg/l	Diesel Range Organics µg/l
MW1 March 08		
MW1 Sept. 08		
MW 2 March 08	48	< 10
MW 2 Sept. 08	< 10	< 10
MW 3 March 08	< 10	< 10
MW 3 Sept. 08	< 10	< 10
MW 4 March 08	< 10	< 10
MW 4 Sept. 08	< 10	< 10
MW 5 March 08	< 10	< 10
MW 5 Sept. 08	< 10	< 10
MW 6 March 08		
MW 6 Sept. 08	39	195

4.3 List I and List II Substances

A report on List I and List II substance reductions was submitted in the 2003 AER. As quantities used are already low there are no plans to reduce quantities at present. This will be reviewed if new information / alternatives come to light.

4.4 Noise Monitoring Report

See Appendix I. Please note the current NSL's per the IPCCL were tested. A further test has been arranged to commence early April to monitor noise levels at three additional NSL's as per EPA recommendation in 2008. This will be forwarded to the Agency once complete.

4.5 Bund Test Report

Bund location	Result	Date of Inspection	Next Inspection Due
House Transformer HoT 11 (10kV-380kV) BUND	Tested & holding	**23-06-08**	**23-06-11**
House Transformer HoT 12 (10kV-380kV) BUND	Tested & holding	**23-06-08**	**23-06-11**
House Transformer HoT 13 (10kV-380kV) BUND	Tested & holding	**23-06-08**	**23-06-11**
Main Transformer T41 BUND	Tested & holding	**09-06-08**	**09-06-11**
Main Transformer T42 BUND	Tested & holding	**08-06-08**	**08-06-11**
Main Transformer T43 BUND	Tested & holding	**16-06-08**	**16-06-11**
Unit Transformer UT4 BUND	Tested & holding	**07-08-08**	**07-08-11**
Unit Transformer UT5 - BUND	Repaired & Tested		**01-03-10**
House Transformer HoT4 - BUND	Tested & passing	**06-08-08**	**06-08-11**
House Transformer HoT5 - BUND	Tested & holding	**06-08-08**	**06-08-11**
Pump House Transformer PHT12 - BUND	Tested & holding	**13-08-08**	**13-08-11**
Pump House Transformer PHT13 - BUND	Tested & passing	**13-08-08**	**13-08-11**
House Transformer (Spare) (10kV-380kV) BUND	Tested & holding	**23-06-08**	**23-06-11**
ST41 Transformer - BUND	Tested & holding	**17-06-08**	**17-06-11**
ST42 Transformer - BUND	Tested & holding	**16-06-08**	**16-06-11**
T2004/5 Transformer - BUND	Tested & holding	**07-08-08**	**07-08-11**
ST 11 Transformer (38kV-3.3kV) - BUND	Tested & holding	**15-08-08**	**15-08-11**
Hydrazine Storage Tank - BUND	Tested & holding	**01-11-07**	**31-10-10**
Waste Oil Storage - BUND			**01-04-10**
Diesel Storage Compound - BUND	Inspected	**15-02-08**	**15-02-10**
220 kV Cable Oil Tank - BUND	Tested & holding	**14-08-08**	**14-08-11**

Note 1: Due to the size of the neutralisation sump water retention testing is not recommended by the EPA guidance note. Hence it is intended that this bund will be certified by inspection by a chartered civil engineer, in line with the guidance note from now on.

Appendix I

Appendix II