ANNUAL ENVIRONMENTAL REPORT – 2009

GAIRDINI (TRADING AS MUNSTER JOINERY) LACKA CROSS, BALLYDESMOND, COUNTY CORK

IPPC LICENCE REFERENCE NO.: P0639-02

ORIGINAL

PREPARED BY:

KINGDOM ENVIRONMENTAL SERVICES

FOR

GAIRDINI,
LACKA CROSS,
LACKANASTOOKA,
BALLYDESMOND,
MALLOW,
CO. CORK

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REVISION CONTROL TABLE

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Rev. Mr.	Description of Changes	Prepared by:	Checked by:	Approved by:	Date:
1	Issue to Client	Kingdom Environmental Services	FO'S	TO'L	30/03/10

Client: Gairdini (training as Munster Joinery)

Keywords: IPPC Licence, Annual Environmental Report (AER), environmental monitoring

Abstract: Kingdom Environmental Services has prepared an Annual Environmental Report for Gairdini (trading as Munster Joinery) in compliance with IPPC licence Register number P0639-02- *Schedule D*.
The report covers the annual reporting period 2009.

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1. INTRODUCTION

The Environmental Protection Agency issued Gairdini an Integrated Pollution Prevention Control Licence (Register No P0639-02) on 29 June 2007 for its facility located at Lacka Cross, Ballydesmond, Co. Cork. The licence was issued for the:

> *"The use of coating materials in the processes with a capacity to use at least 10 tonnes per year of organic solvents not included in Class 12.2.1"*

This report addresses Condition 11.8 of the IPPC licence for the facility. This condition states that:

- *The licensee shall submit to the Agency, by the 31st March of each year, an AER covering the previous calender year. This report, which shall be to the satisfaction of the Agency, shall include as a minimum the information specified in Schedule D: 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 D – Annual Environmental Report Content, of the IPPC licence (P0639-02). This AER covers the reporting period from 1st January 2009 up to 31st December 2009.

This report has been prepared by Kingdom Environmental Services for Gairdini.

1.1 Site Description and Activities

The site is a large installation (circa. 54 acres in total) located approximately 3 km south of Ballydesmond, Mallow, Co. Cork along the R577 in the townland of Lackanastooka. On the western side of the site, the River Blackwater flows south, generally following the route of the R577. Building area comprises of approximately 15 acres of the site while an area of car park, roadway and storage areas make up the remaining 39 acres.

The site is divided into three parcels of land separated by the north-south regional road R577 and the east-west county road. A timber storage compound and a car park are found to the west of the R577 while factory buildings and offices are located to the east of the R577 and north of the county road.

To the south of the county road is the facilities wastewater treatment plant which has recently been upgraded. The remainder of the site consists of factory buildings, outfitters building, chemical store and a recycling area. There is nose to kerb car parking along the county road.

1.2 Activities

Munster Joinery was established in 1973 and is based at Lacka Cross, Lackanastooka, Ballydesmond, Mallow, Co. Cork. Through progressive growth, it is currently Ireland's largest and leading energy saving window and door manufacturer. A complete range of hardwood, softwood, uPVC, steel and aluminium doors and windows are manufactured at the Ballydesmond facility.

The activities carried out at each area are described in the subsections below.

1.2.1 Aluminium Windows and Doors Process Area

Aluminium frame enclosing glass panels are used to manufacture aluminium windows and doors. Following the delivery of aluminium profiles to the site, they are cut to the required lengths and using mechanical connections they are formed into aluminium doors and window frames.

Once the frames are completed, the prefabricated glass panels from the Glass Panel Manufacturing Department are installed along with any required fittings. The completed windows and doors are then sent to the dispatch department where they will be shipped to the site.

1.2.2 Glass Process Area

Large sheets of clear glass are delivered to the site for the manufacture of window and door panels. Some glass sheets are then toughened by a process of exposing it to a very high temperature. The glass is processed into single glazed panels, double glazed panels and decorated with Qualage (an imitation lead decoration).

The double glazed glass panels (both clear and decorated), are mounted on The panels are then ready for installation.

1.2.3 Hardwood –Teak Windows and Doors Process Area

Hardwood frames and glass panels are used to manufacture hardwood windows and doors. Once delivered to the site, the hardwood ingots are stored in the timber storage yards. When required the timber is collected and stacked prior to the drying process. In order to remove the internal moisture in the timber, the timber is placed in kilns for a period of approximately one month. Following the drying process, the timber is cut and formed into the required lengths for the windows and doors. The cut and formed timber is then assembled into the window frames, door frames and door panels. A teak-stain spray booth is used to give the frames and panels their required colour. Once the frames are completed, the prefabricated glass panels from the Glass Panel Manufacturing Department are installed with any required fittings. The completed windows and doors are then sent to the dispatch department where they will be shipped to the off site to the construction site.

1.2.4 Plastic Doors Process Area

Plastic doors are manufactured from a foam sheet between two plastic door panels using an aluminium or u.P.V.C. frame as a support. Once delivered to the site, the foam sheets are sprayed with adhesive and then glued between two plastic door panels. A certain number of doors then have panels removed to allow for the installation of glass windows. The doors are then fitted into aluminium or u.P.V.C. frames and the glass panels from the Glass Panel Manufacturing Department are installed along with any required fittings. The completed doors are then sent to the dispatch department for shipment off site to the construction site.

1.2.5 u.P.V.C. Windows and Doors Process Area

u.P.V.C. windows and doors are manufactured by enclosing glass panels in a u.P.V.C. frame. The u.P.V.C. profiles are either manufactured on-site or delivered directly to the site. In order to manufacture u.P.V.C. profiles on-site, a u.P.V.C powder must be heated and then extruded into the required profile. This process is carried out in the Extrusion Building.

Both the purchased and manufactured profiles are then formed into window and door frames in the Frame Manufacturing Building. The profiles are altered to the required lengths and using mechanical connectors, they are assembled to form the u.PVC door and window frames.

The frames are then fitted with the prefabricated glass panels from the Glass Panel Manufacturing Department along with any required fittings. The completed u.P.V.C. windows and doors are then sent to the dispatch department for shipment off site to the construction site.

1.2.6 Softwood –Pine Windows and Doors Process Area

Softwood frames and glass panels are used to manufacture softwood windows and doors. Once delivered to the site, the softwood ingots are stored in the timber storage shed. When required, the timber is cut and formed into the required length and shape for the windows and doors.

The cut and formed timber is then assembled into window frames, door frames and door panels. They are then transferred to the softwood processing plant for treatment. The treatment process is a Protim 418V Prevac system. It is a three component system composing of a treatment vessel, an operational storage vessel (OSV), and a bulk storage vessel (BSV) where preservative deliveries are discharged. The BSV is used to top up the OSV prior to each treatment. The wood is placed into treatment vessels where it is impregnated with a wood preservative -Protim 418V.

It is then stacked in a dryer for approximately 48 hrs. to remove any internal moisture. Once the treatment process is complete the prefabricated glass panels from the Glass Panel Manufacturing Department are installed with the required fittings. The completed windows and doors are then sent to the dispatch department for shipment off site to the construction site.

1.2.7 Steel Doors Process Area

Steel door sheets are cut to the required length and formed into the required shape for door panels. The door panels are then attached to wooden frames and foam is injected into the frame. A certain number of doors then have panels removed to allow for the installation of glass panels. The glass panels from the Glass Panel Manufacturing Department are then installed and any required fittings are made. The completed doors are then sent to the dispatch department where they will be shipped off site to the construction site.

1.2.8 Wastewater Treatment Process Area

The newly upgraded wastewater treatment plant carries out tertiary treatment of the effluent prior to discharge to the river. It consists of two balancing/holding tanks. Waste water from the facility is pumped into these tanks. The wastewater goes from the balancing tanks to two aerator tanks. These aerator tanks are designed as a rotor, equipped with pipes. A micro organism film develops on these pipes. These pipes are open in a section and therefore as they rotate around they collect waste water as well as air when it emerges from the water. During the downward rotation of the pipes back into the water, the air is trapped and forced into the micro organism film and supplies the micro organisms with oxygen. This rotation also allows for the complete mixing of the aerator tank.

The waste water goes from the aerator tanks to the clarifier tank where heavier particles settle out and final treated effluent flows over the weir. The heavier particles which contain a high number of micro organisms are taken from the bottom of the clarifier to the sludge holding tank. Some of this sludge is sent back to the aerator tank to ensure maximum number of micro-organisms and the rest of the sludge is taken off site by a specialised waste contractor.

1.2.9 Combined Heat and Power Plant Process

The CHP consists of a furnace, steam boiler and electrical plant, control and store rooms. A steam turbine, electrical generator, and ancillary infrastructure is currently being installed in the facility.

When sawdust and wood chips are produced on site they are extracted and deposited in two concrete bunkers behind the CHP. The sawdust is stored here prior to being used to fuel the grate furnace. The furnace has an automatic fuel feed regulator and a stepwise air supply. This generates steam in the boiler which has a maximum output of 12 MW.

This steam first passes through a pre-heating chamber, followed by an The resultant steam is used to heat the site. After the installation of the steam turbine, any surplus steam will be used to generate electricity. This reduces Munster Joinery's overall dependency on the National Grid for electricity. The expected output from the steam turbine is a maximum of 3 MW.

Combustion gases that are produced and emitted from the boiler, pass via a multi-cyclone and an electrostatic precipitator, prior to the discharge to the atmosphere.

1.2.10 Ancillary Infrastructure

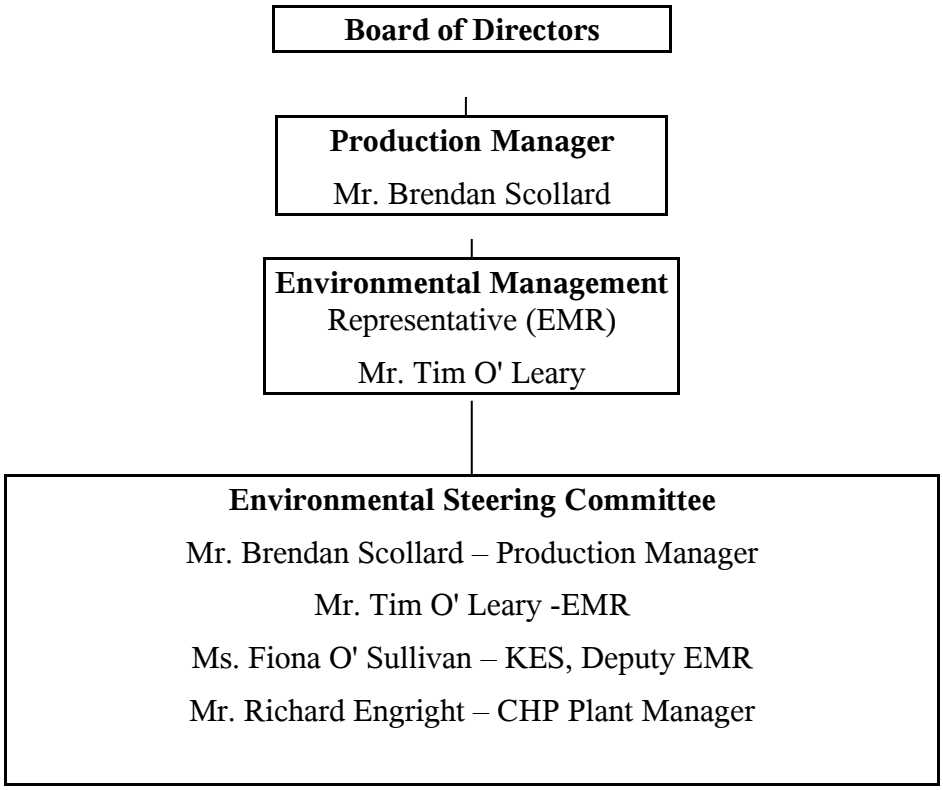
In addition, there are offices, welfare facilities etc. located at the site which include:

- Administration offices
- Car parking areas
- Timber storage areas
- ESB and Munster Joinery sub station and generator compound
- Dispatch building
- Raw material storage and paint storage buildings
- Recycling building
- Water treatment buildings
- Water storage and fire water storage tanks
- Diesel fill tanks for trucks and forklifts

1.3 Environmental Management Structure

Key Personnel

The relevant key personnel involved in the environmental management of the facility are outlined below.



2. ENVIRONMENTAL MONITORING

Gairdini are committed to achieving a high standard of environmental performance and to this end, have taken environmental considerations into the operation of the facility and in the management structures which have been implemented to date.

The IPPC Licence sets out the limits on emissions to air, water and noise from the installation. It sets out the conditions under which Gairdini will operate and manage its facility. A summary of the monitoring carried out, the frequency and the emission limit values are outlined below. All monitoring is conducted by suitably qualified personnel or appointed consultants.

2.1 Emissions to Surface Water

Surface water monitoring is carried out at four locations SW1, SW2, SW3 and SW4 as shown on Drawing No. 558/M/2500/04 "Emission Points" (see Appendix 1).

The receiving waters is the River Blackwater.

The monitoring results are presented in the following tables and summarised in the corresponding graphs.

Note: SW4 was found to be dry during each sampling inspection.

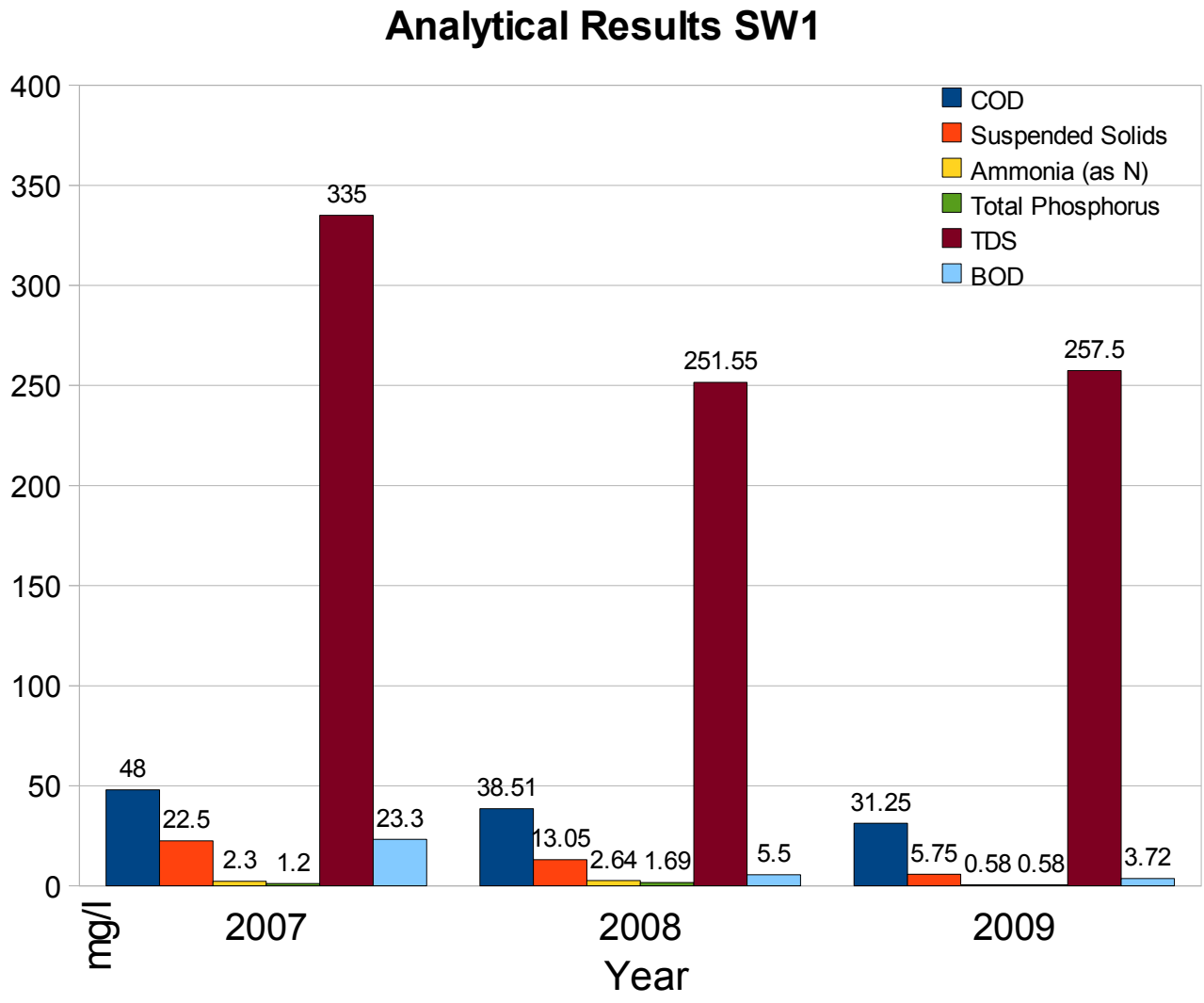
The IPPC Licence Register number P0639-02 was issued in June 2007. Each set of analytical results obtained are compared to the limits as set out in the IPPC licence. The results are also graphically illustrated for each year.

The results in table 1 are those from the emission point SW1 as specified in the IPPC Licence.

Table 1 Emission Point Reference - SW 1 (WWTP)

Parameter	Limit Value	Average SW 1 (WWTP)- Outlet	Annual Emissions at SW1
Units	**mg/l**	**mg/l**	**kg/year**
COD		31.25	788.16
BOD	20	3.72	101.74
Suspended Solids	20	5.75	138.88
Ammonia (as N)	3	0.58	1.73E+001
Total Phosphorus	2	0.58	1.41E+001
Total Dissolved Solids		257.5	6605.13

Figure 1: Analytical Result SW1



Interpretation of Results

The surface water results for SW1 have been compared to limits as imposed by the IPPC Licence and displayed in table 1. These results relate to the sampling period from the start of January 2009 to the end of December 2009.

This emission data is based upon the averaged daily and weekly analysis of SW1. Quarterly monitoring was carried out for the BOD analysis. The average and total flow was also utilised for calculations on SW1

The recorded results for SW1 as shown in the graph indicate not only a reduction in the results from the previous years but they are also in compliance with the water emission limit values, set out by the EPA in the IPPC Licence.

The results in table 2 are those from the emission point SW2 and SW3 as specified in the IPPC Licence.

Table 2 ***Emission Point Reference - SW2 and SW3***

Parameter	Limit Value	Average SW 2- Outlet	Average SW 3- Outlet	Units
pH	6 to 9	7.33	7.67	pH units
Temp		N/A	18.61	(°C)
Suspended Solids		N/A	25.94	mg/l

Figure 2: Analytical Results SW2

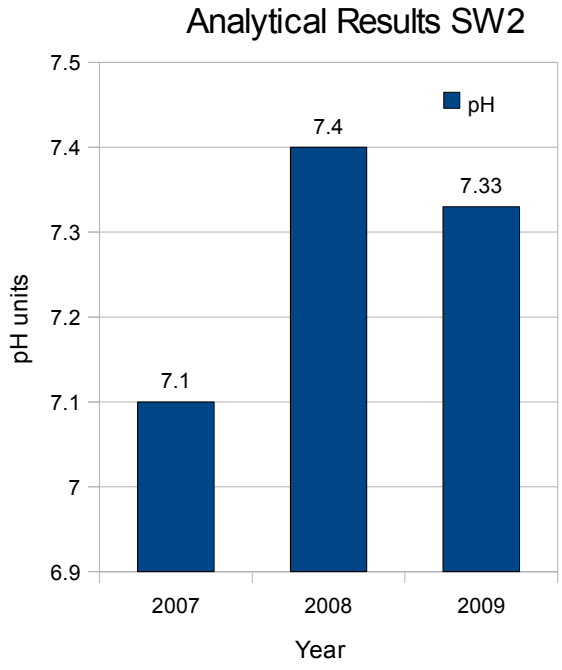
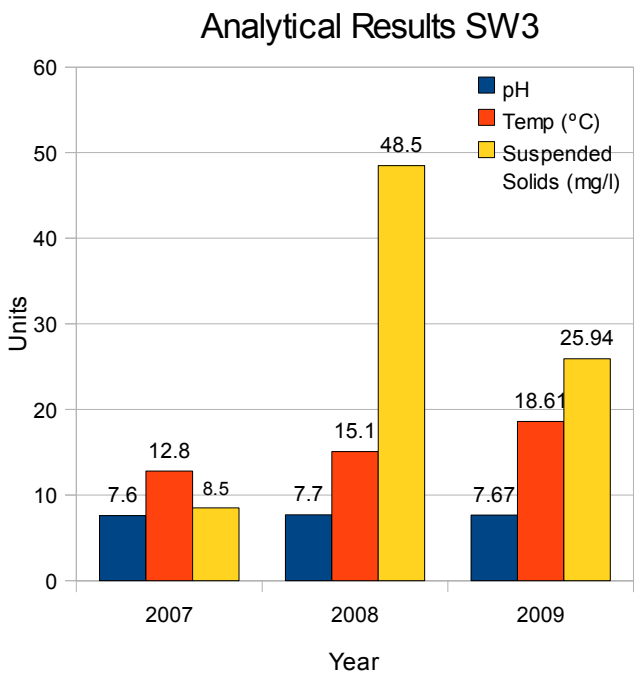


Figure 3: Analytical Results SW3



The above graphs represents the obtained results for SW2 and SW3. A comparison is made between the sampling years 2007, 2008 and 2009.

2.2 Emissions to Atmosphere

As set out in the IPPC Licence Register number P0639-02 air monitoring is carried out at emission point A1-1. A1-1 is located at the combined heat and power plant, as shown on Drawing No. 558/M/2500/04 "Emission Points" (see Appendix 1). The monitoring results for 2009 are outlined in the table below. For a copy of the report see Appendix 2.

Table 3 Emissions to Atmosphere

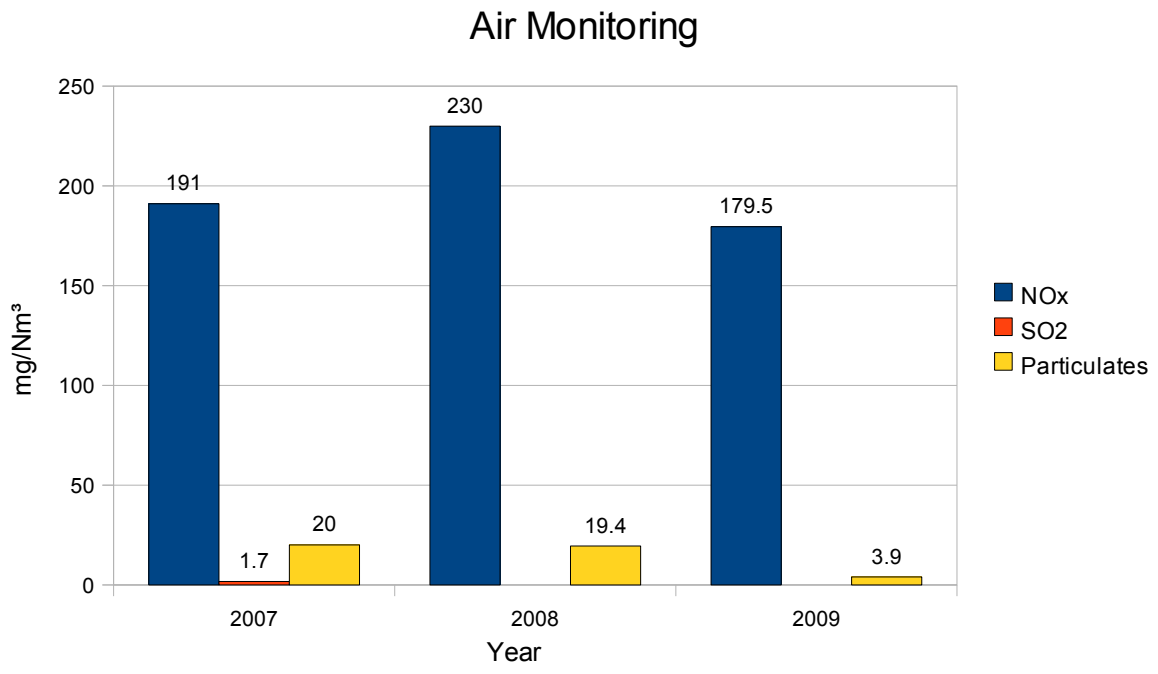
Parameter	Average Emission Concentration (mgN/m³)	Mass Emission Rate (Kg N/hr)	Mass Emission Rate (Kg N/yr)	Limit
NO_x	179.5	2.15	18834	250 mg/m³
SO_2	< 5	<0.06	<525.6	-
Particulates	3.9	0.05	438	20 mg/m³
Smoke	< 1	<0.01	<87.6	<1

Interpretation of Results

The table of results provides information pertaining to the annual emissions to the atmosphere from the facility. The emission data is based upon the averaged monitoring data available for the facility. As noted from the results all licensed parameters detected are within the limits.

A comparison was made with the previous monitoring periods (2007 and 2008) as displayed in the following graph.

Figure 4: Air Monitoring



2.3 Noise Emissions

Under condition 6.13 of the IPPC Licence Register number P0639-02 noise monitoring is carried out on annual basis, at 5 sensitive locations as shown on the Noise Monitoring Location Map (see Appendix 1). The results are summarised in the following table.

Table 4 Noise Monitoring Data (A-Weighted)

Period	Location	Start Time	Finish Time	L_{eq}	L_{10}	L_{90}	Wind Speed (m/s
				dB(A)	dB(A)	dB(A)	Average
Day Time	N1	14.27	14.57	53	55	47	0.5 – 1.0
	N2	15.00	15.30	53	54	50	0.5 – 1.0
	N3	13.50	14.20	52	53	48	0.5 – 1.0
	N4	13.15	13.45	55	58	51	0.5 – 1.0
	N5	12.38	13.08	47	50	41	0.5 – 1.0
Night Time	N1	0.23	0.53	45	49	42	0 – 1.0
	N2	23.16	23.46	44	50	41	0 – 1.0
	N3	22.40	23.10	45	47	42	0 – 1.0
	N4	23.45	0.15	44	50	40	0 – 1.0
	N5	0.58	1.28	45	51	42	0 – 1.0

Interpretation of Results

Results from noise sensitive locations N1, N2, N3, N4 and N5 show compliance with the daytime and the night time noise emission limit of 55 dB(A) L_{Aeq} (30 minutes) and 45 dB(A) L_{Aeq} (30 minutes) respectively.

The main source of noise during daytime monitoring is a combination of on-site operations at Gairdini, noise from the wind turbines, traffic movement, noise from the river, construction work at neighbouring dwelling and occasional breeze which was banging farmyard shed doors.

The main source of noise during night time monitoring is a combination from the wind turbines and river water, wind passing through trees, dogs barking, shed doors banging and traffic movements on nearby roads.

Overall, the noise levels at the noise sensitive locations are in compliance with the noise emission limits values set out by the Environmental Protection Agency in the IPPC Licence.

2.4 Waste Management

The waste management record for the facility is outlined in the following table.

Table 5 Waste Management Data

Waste Steam	EWC Code	Annual (Tonnage)	Recycled/ Disposed	Recovered/ Disposal Codes
Cardboard	15 01 01	302.97	**Recycled**	R3
Paper	15 01 01	69.42	**Recycled**	R3
Pvc Profile	20 01 39	947.58	**Recycled**	R5
Plastic Bottles	15 01 02	2.73	**Recycled**	R5
Swarf	20 01 39	61.55	**Recycled**	R5
Plastic Wrap	15 01 02	120.72	**Recycled**	R5
PP Rope	15 01 02	45.04	**Recycled**	R5
General Waste	20 03 01	633.03	**Disposed**	D1
Metal	20 01 40	193.64	**Recycled**	R4
Sludge	19 08 05/20 03 04	31.23	**Diposed**	D2
Glass	20 01 02	2952.08	**Recycled**	R5
Bondex	08 01 11*	1.7	**Disposed**	D 10
Water-Based Paint	08 01 11*	599.58	**Disposed**	D 9/15
Traffic Paint Cazaphos	08 01 11*	0.51	**Disposed**	D 10
White Spirits	08 01 21*	0.22	**Disposed**	D 10
Sealant	16 05 08*	3.43	**Disposed**	D 10
Waste Oil & Water	16 05 08*	4.29	**Disposed**	D 10
Adhesives	16 03 05*	0.38	**Disposed**	D 10
Thinners / Primer	16 03 05*	0.76	**Disposed**	D 10
Protim	03 02 05*	3.17	**Disposed**	D 10
Sulphuric Acid	06 01 01*	0.19	**Disposed**	D 10
Prefere 4152(aerolite)	08 04 09*	0.03	**Disposed**	D 10
Gear Box Oil	13 02 08*	1.52	**Disposed**	D 10
Ascusol PU 55	16 03 05*	1.52	**Disposed**	D 10
Screen Wash	16 03 05*	1.52	**Diposed**	D 10
Cellifloc A 10	16 03 05*	0.05	**Disposed**	D 10
Envirofoam	16 03 05*	1.06	**Disposed**	D 10
Total		5979.92		
% Recycled		78.52		
% Disposed		21.48		

Figure 5: Total Waste

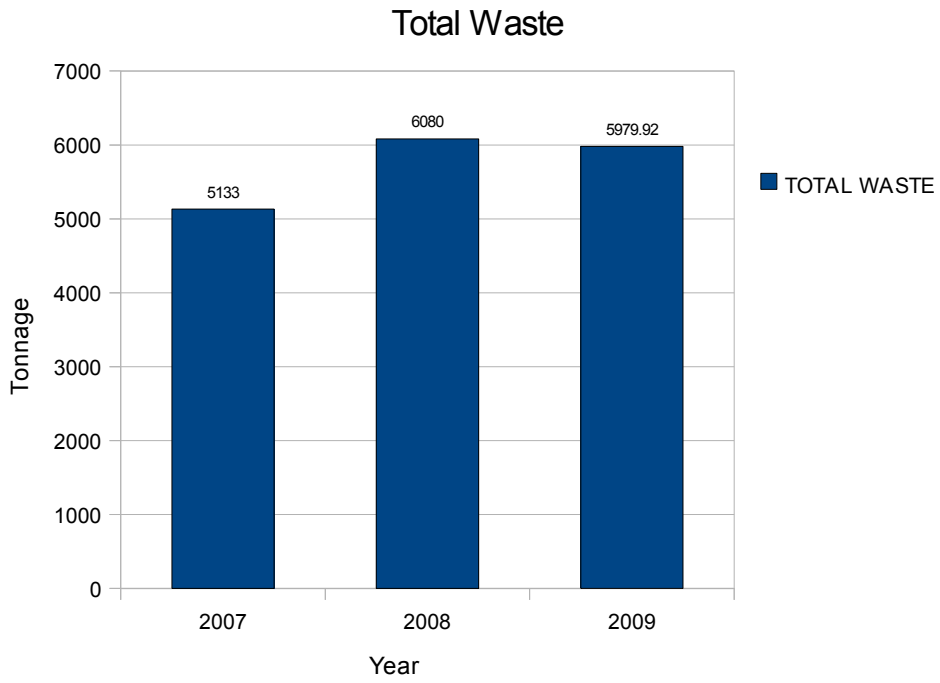


Figure 6: Waste Management

The figures given above outline the trend in recovery of recyclables for the period January 2009 to December 2009.

Only 21.5% of the total amount of waste is disposed of off site. These figures are compared to the obtained figures in 2007 and 2008.

Names and addresses of waste recovers and disposers are included in the electronic form submitted to the EPA.

2.5 Resource Consumption Summary

2.5.1 Energy

The following tables represents the figures of resource consumption for 2009:

Table 6 Energy Consumption 2009

Energy Consumption	Units	Sulphur Content	2009 Total	2008 Total	2007 Tota
Heavy Fuel Oil	m^3	50 ppm	450.49	703.08	741.54
Light Fuel Oil	m^3	10 ppm	802.77	908.93	1002.35
Natural gas	m^3	-	N/A	N/A	N/A
Electricity	mW/hr	-	13061	21337	24935
Coal etc.	Kg	-	N/A	N/A	N/A

Figure 7: Energy Consumption

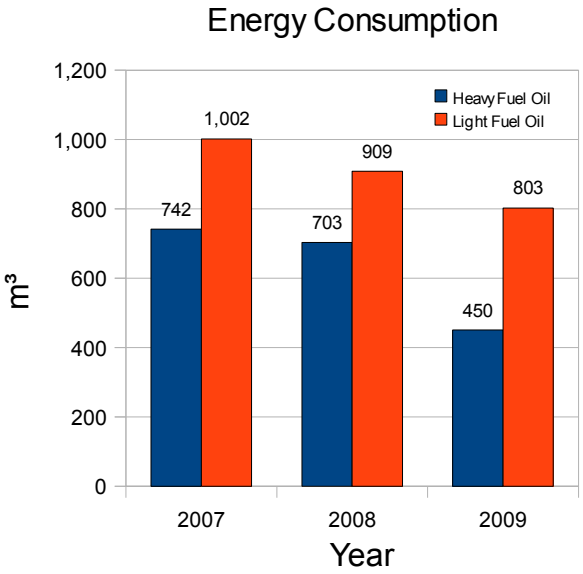
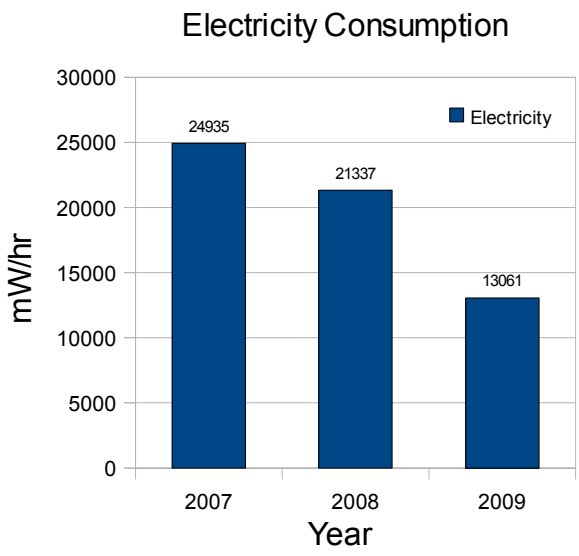


Figure 8: Electricity Consumption



The facility has been very active in improving energy efficiency for some time. As portrayed by the table and graph the calculated figures for heavy and light fuel oil and electricity have improved in comparison to 2007 and 2008, this continues to be an ongoing progression.

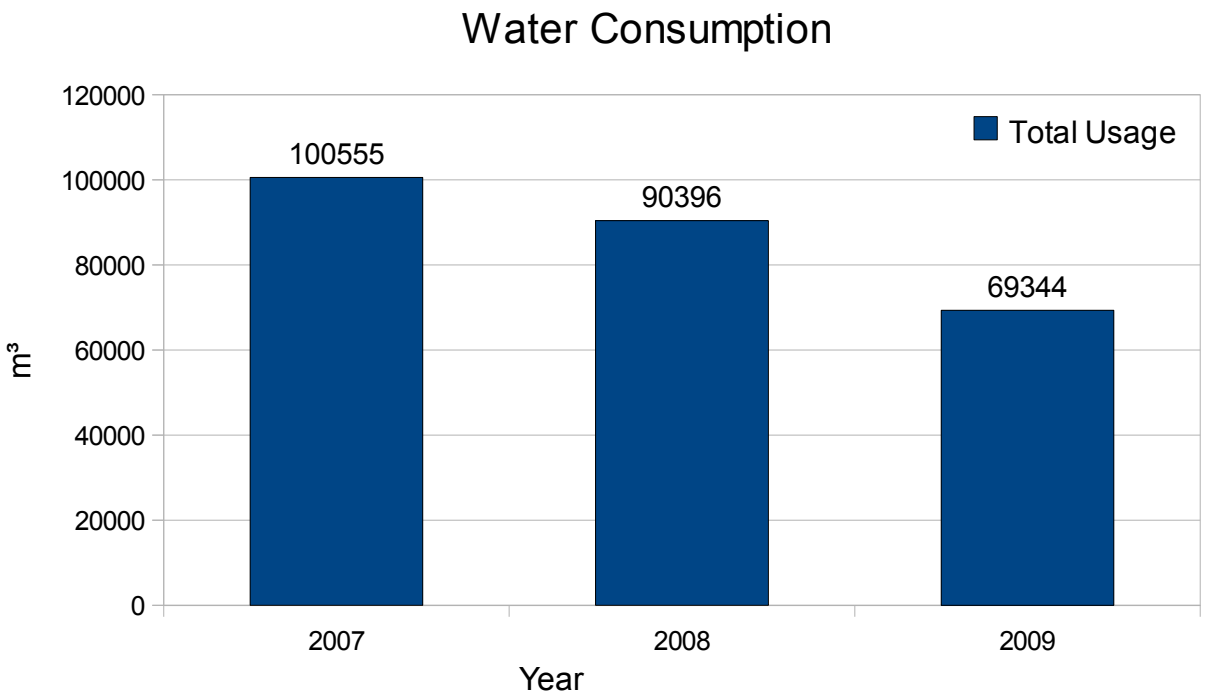
2.5.2 Water

The amount of water usage in 2009 is portrayed in the following table and compared to the 2007 and 2008 figures which is displayed in the graph.

Table 7 Water Consumption 2009

Water Consumption	Units	2007 Total	2008 Total	2009 Total
On-site Groundwater use	m^3	100555	90396	69,344
On-site surface water use	m^3	N/A	N/A	N/A
Municipal Water	m^3	N/A	N/A	N/A

Figure 9: Onsite Ground Water Usage



As observed from the above table and graph a significant reduction in water consumption is noted for each reporting year. This reduction is an on going progress as set out in the schedule of objectives and targets.

2.6 Environmental Complaints and Incidents Summary

The Environmental Management Representative (EMR) ensures that all internal/external complaints regarding environmental practices is received and documented in a register which is located in the EMR's office. The agency and other relevant authorities are notified.

Records of site incidents are also kept on file and located in the EMR's office. The agency and other relevant authorities are notified.

Two complaints were received and no incidents occurred throughout 2009

Complaints:

- Compliant received on 6-02-09 in relation to the installation of fire exit doors.

- Compliant received on 20-10-09 with relation to odour and smoke from the facility.

Incidents :

During the reporting period no incidents occurred.

3. MANAGEMENT OF ACTIVITY

3.1 Introduction

As per condition 2.2 an Environmental Management System (EMS) was established within six months of been granted the licence. This was forwarded to the agency in December 2007. The EMS includes the schedule of Objectives and Targets, Environmental Management Programme and Specific Procedure. The EMS will be maintained and updated on annual basis.

3.2 Schedule of Environmental Objectives and Targets

As required a schedule of objectives and targets was prepared. The schedule includes time frames for the achievement of set targets. The schedule shall be reviewed annually and amendments thereto notified to the Agency for agreement as part of the Annual Environmental Report (AER).

Table 8 Schedule of Objectives and Targets

Objective No.	Objective	Target
1	Increase energy efficiency and reduce energy use at the facility. To become more self-sufficient and increase the security of supply to the facility.	To increase energy efficiency and reduce energy usage at the facility.
2	Monitor water usage and devise a strategy to reduce, recycle and reuse water on-site.	To reduce water usage at the facility.
3	Reduce the volume of waste produced in the facility and examine the feasibility of increasing the efficiency of use of the raw materials.	Continue to improve recovery, reuse and recycling of waste material generated on site.
4	Carry out an assessment of the surface water management system.	Achieve compliance with emission limit values for pH and flow discharges from the waste water treatment plant (WWTP) in accordance with Condition 4.3 of the IPPC licence.
		Achieve compliance with emission limit values for all other parameters for in the waste water treatment plant discharge in accordance with Condition 4.3 of the IPPC licence.
		Carry out an assessment of significant emissions to the surface water management system.
5	Research and evaluate the technical and economic feasibility of controlling the discharge of dichloromethane from the lamination process at the facility.	This assessment was completed in March 2008.
		The objective is been revised taking into considerations the findings.

Table 8 Schedule of Objectives & Targets Continued

Objective No.	Objective	Target
6	Monitor levels of both point and fugitive emissions from the facility.	This assessment was completed by March 2008 and this objective is being Revised in the light of the findings.
7	Replace and repair dust extraction pipework	Reduce fugitive dust emissions
8	Facility monitoring i.e. Investigate any leaks in over ground pipes/ air leaks etc.	Following this investigation, the tasks for the implementation of these initiatives Will be reviewed.
9	Improve access to SW2 and SW3 surface water monitoring locations.	Create safe access to monitoring point

3.3 Environmental Management Programme (EMP) Report

The purpose of the EMP is to ensure that the Environmental Objectives and Targets is supported by a realistic programme which is implemented throughout the organization. An EMP defines tasks to be undertaken to achieve the Objectives and Targets. It also identifies the time frame for the tasks to be completed.

3.3.1 Environmental Management Programme – 2009

The environmental management programme for 2009 is outlined in Table 9.

3.3.2 Environmental Management Programme – Proposal for 2010.

The environmental management programme proposed for 2010 is outlined in Table 10.

Table 9 Environmental Management Programme 2009

Objective No.	Objective	Target	Tasks	Estimated Complet Date
1	Increase energy efficiency and reduce use at the facility. To become more self-sufficient and increase the security of supply to the facility.	To increase energy efficiency and reduce energy usage at the facility.	Roll out the replacement of the lighting lamps to all other processes.	Ongoing
		To become more self -sufficient by producing 70% of the facilities energy requirement by 2009.		A substantial percent was achieved. Howe due to fuel shortages full 70% was not achieved as the CH plant and steam turb could not be operate full capacity.

Objective No.	Objective	Target	Tasks	Estimated Complet Date
2	Monitor water usage and devise a strategy to reduce recycle and reuse water on site.	To reduce water usage at the facility.	Monitor water usage at the facility.	Continuous
			Identify areas/ opportunities where water usage can be reduced/ reused/ recycled.	Completed
			Following this identification the tasks for the implementation of these initiatives will be reviewed.	Currently in progres

Objective No.	Objective	Target	Tasks	Estimated Complet Date
3	Reduce the volume of waste produced in the facility and examine the feasibility of increasing the efficiency of use of the raw materials.	Reduce the amount of waste sludge produced from the facility by 90% by December 2009.	Commission the treatment process to ensure correct operation and a 90% reduction in waste.	Put on hold until furth research is complet
		Reduce the amount of waste sludge been sent off site by December 2009.	Following this identification (raw material efficiency) the tasks for the implementation of these initiatives will be Reviewed.	Completed
			Construct the centrifuge dewatering plant.	Completed
			Commission the dewatering Process to ensure correct operation and reduction in Waste sludge.	Completed

Objective No.	Objective	Target	Tasks	Estimated Complet Date
4	Carry out an assessment of the surface water management system.	Achieve compliance with the emission limit values for pH and flow discharges from the waste water treatment plant (WWTP). In accordance with condition 4.3 of the IPPC licence.	Maintain operation control of the WWTP to control pH and flow discharges.	Continuous
		Achieve compliance with emission limit values for all other parameters analysed in the waste water treatment plant discharge in accordance with Condition 4.3 of IPPC licence.	Maintain operation control of the WWTP to control all other monitoring parameters.	Continuous
		Carry out an assessment of significant emissions to the surface water management system.	Assess surface water emissions	Continuous

Objective No.	Objective	Target	Tasks	Estimated Complet Date
5	Research and evaluate the technical and economic feasibility of controlling the discharge of dichloromethane from the lamination process at the facility.	This assessment has been completed in February 2008 and this objective is been reviewed taken into consideration the findings.	Review targets and tasks taking into account the technical and economical feasibility assessment findings.	Trials in progress completion date follow review of trials being carried

Objective No.	Objective	Target	Tasks	Estimated Complet Date
6	Monitor levels of both point and fugitive emissions from the facility.	This assessment was completed by March 2008 and this objective is being revised in the light of the findings.	Research suitable abatement measures / controls for significant fugitive emissions	Currently in progres

Objective No.	Objective	Target	Tasks	Estimated Complet Date
7	Investigate any leaks in Foul Ground pipes.	Following this investigation, the tasks for the implementation of these Initiatives will be reviewed.	Detect and repair/ replace any defective pipe works	Completed but this wi carried out on a continuous basis

Objective No.	Objective	Target	Tasks	Estimated Complet Date
8	Install a new computerised stock control system.	The aim of the computerised stock control system is to be used as a measure of identifying the facilities compliance with the use of organic solvents.	Create a fresh database consisting of Stock information.	Completed
		Allowing the purchasing department to see the same information of stores by displaying stock history.	Produce a site survey report. Configuration of software and installation of hardware devices.	Completed
			Ensuring the specific solvent consumption is being reduced.	Ongoing

Table 10 Environmental Management Programme proposed for 2010

Objective No.	Objective	Target	Tasks	Estimated Complet Date
1	Increase energy efficiency and reduce use at the facility. To become more self- sufficient and increase the security of supply to the facility.	To increase energy efficiency and reduce energy usage at the facility.	Roll out the replacement of the lighting lamps to all other processes.	2012
			Investigate the heat exchanger in the new boiler house to improve heat transfer efficiency.	2010

Objective No.	Objective	Target	Tasks	Estimated Complet Date
2	Monitor water usage and devise a strategy to reduce, recycle and reuse water on site.	To reduce water usage at the facility.	Monitor water usage at the facility.	Continuous
			Research the feasibility of rain water harvesting.	2010
			Following this identification the tasks for the implementation of these initiatives will be reviewed.	Completion date follo review being carried

Objective No.	Objective	Target	Tasks	Estimated Complet Date
3	Reduce the volume of waste produced in the facility and examine the feasibility of increasing the efficiency of use of the raw materials.	Continue to improve recovery, reuse and recycling of waste material generated on site.	Recycling paint – install new recycling pumps in order to reduce the usage of paint	Awaiting full commiss of plant

Objective No.	Objective	Target	Tasks	Estimated Complet Date
4	Carry out an assessment of the surface water management system.	Achieve compliance with the emission limit values for pH and flow discharges from the waste water treatment plant (WWTP). In accordance with condition 4.3 of the IPPC licence.	Maintain operation control of the WWTP to control pH and flow discharges.	Continuous
		Achieve compliance with emission limit values for all other parameters analysed in the waste water treatment plant discharge in accordance with condition 4.3 of IPPC licence.	Maintain operation control of the WWTP to control all other monitoring parameters.	Continuous
		Carry out an assessment of significant emissions to the surface water management system.	Assess surface water Emissions	Continuous

Objective No.	Objective	Target	Tasks	Estimated Complet Date
5	Research and evaluate the technical and economic feasibility of controlling the discharge of dichloromethane from the lamination process at the facility.	This assessment has been completed in February 2008 and this objective is been reviewed taken into consideration the Findings.	Review targets and tasks taking into account the technical and economical Feasibility assessment Findings.	Trials in progress completion date follow review of trials bein carried out.

Objective No.	Objective	Target	Tasks	Estimated Complet Date
6	Monitor levels of both point and fugitive emissions from the facility.	This assessment was completed by March 2008 and this objective is being revised in the light of the findings.	Analysis of fugitive emissions Research suitable abatement measures / controls for any significant fugitive emissions	2010

Objective No.	Objective	Target	Tasks	Estimated Complet Date
7	Replace and repair dust extraction pipework	Reduce fugitive dust emissions	Old and deficient dust extraction pipework will be repaired and replaced so as to improve the performance of the system thus reducing fugitive dust emissions	Continuous

Objective No.	Objective	Target	Tasks	Estimated Complet Date
8	Facility monitoring i.e. Investigate any leaks in tanks ground pipes/ air leaks etc	Following this investigation, the tasks for the implementation of these initiatives will be reviewed.	Detect and repair/ replace any defective pipe works.	Continuous

Objective No.	Objective	Target	Tasks	Estimated Complet Date
9	Improve access to SW 2 and SW 3 surface water monitoring locations.	Create safe access to monitoring point.	Construct safe access / walkway to surface water outlet pipe	2010

3.2 Pollutant Release and Transfer Register (PRTR)

The E-PRTR Report outlines the releases to air, water and off- site transfers of wastes relevant to the Gairdini facility. The report is based on environmental monitoring data collected in 2009 in compliance with condition 6.14 of the IPPC licence Ref: P0639-02. The PRTR is prepared in accordance with any relevant guidelines issued by the agency and is submitted electronically in specified format as part of the AER.

4. LICENCE SPECIFIC REPORTS

4.1 Energy Efficiency Audit Report Summary

Condition 7.1 of the IPPC Licence states that a energy efficient audit of the facility should be undertaken within one year of the grant of the IPPC Licence. As the IPPC Licence was granted for Gairdini in June 2007, the energy efficiency audit was completed and submitted to the Agency in June 2008.

Key recommendations were made and Giardini are actively working on these.

4.2 Minimize Water Usage, Reduction in Waste Generated and Efficient use of Raw Materials

Giardini are committed to the minimisation of waste and reduction in the consumption of resources. On site consumption data is investigated/examined with a view to continuously improving on efficiency.

These assessments are incorporated into the Schedule of Objectives and Targets.

4.3 Bund Testing and Inspection Report

In accordance with condition 6.9 of the IPPC licence the licensee is required to carry out a bunding structure integrity test and submit report to the Agency in the AER at least once every three years. The bund integrity testing was carried out in 2008 and a report was sent to the agency. The next bund integrity testing is due to take place in 2011.

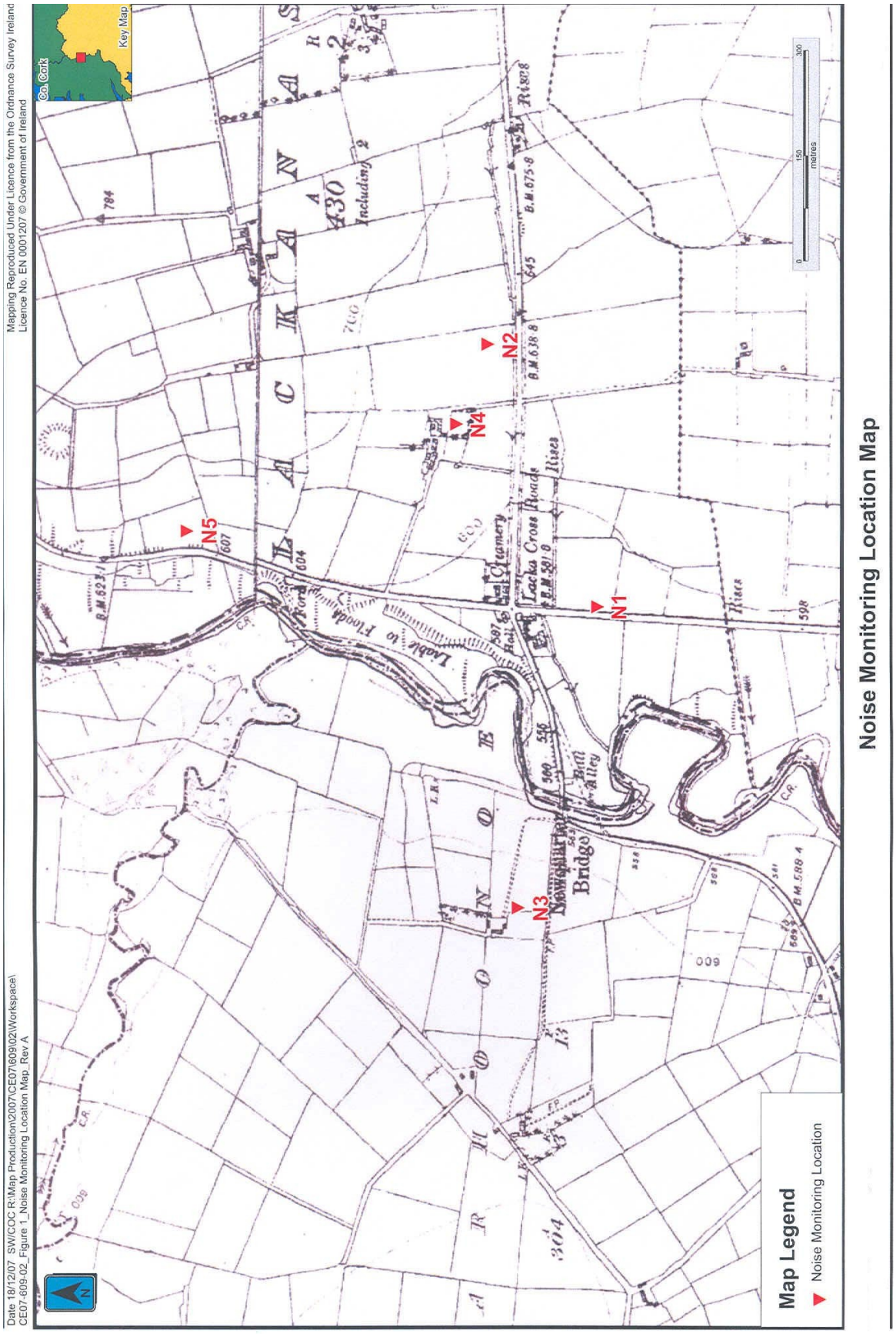
4.4 Solvent Management Plan

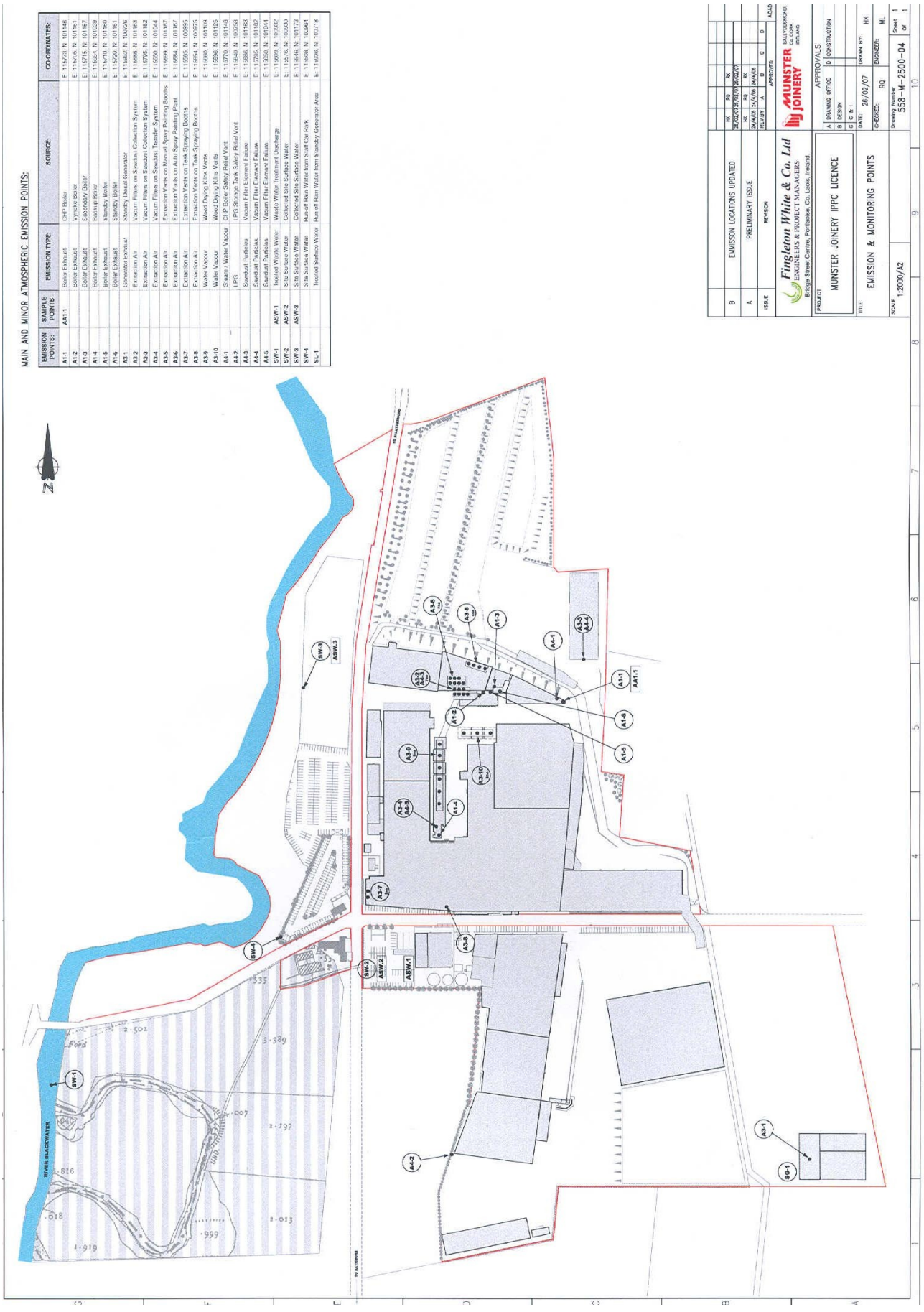
Under condition 6.16 of the IPPC licence, the licensee is required to maintain a Solvent Management Plan (SMP) for the site.

The substances to be included in the SMP shall be determined by reference to the definition of a solvent in Council Directive 1999/13/EC and shall be agreed by the Agency each year. The SMP shall be prepared in accordance with any relevant guidelines in Annex III of the Directive or as issued by the Agency and shall be submitted as part of the AER.

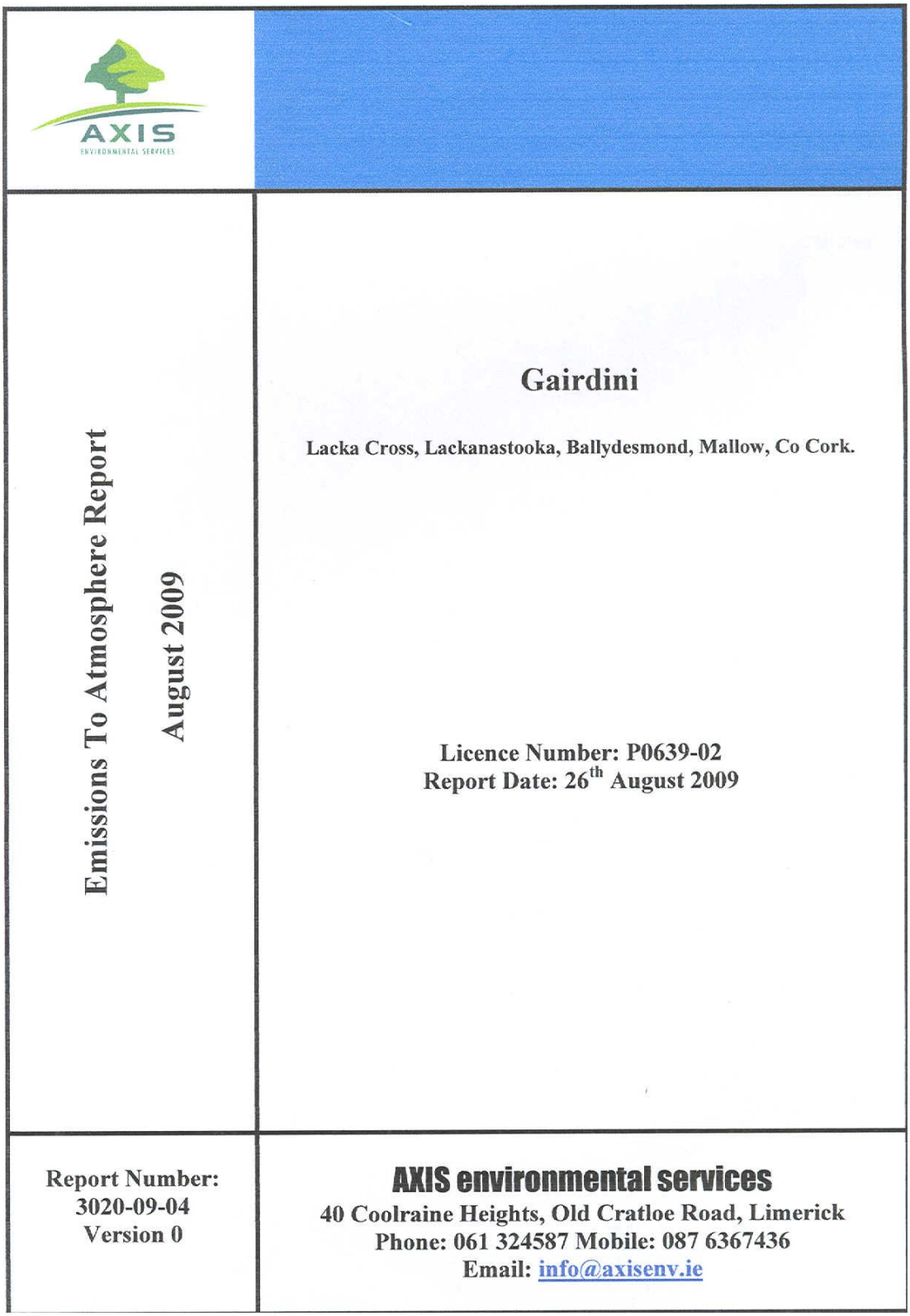
List of Appendices

APPENDIX 1 - Monitoring Location Maps




MAIN AND MINOR ATMOSPHERIC EMISSION POINTS:
EMISSION POINTS: | SAMPLE POINTS | EMISSION TYPE: | SOURCE: | CO-ORDINATES:
A1-1 | AA1-1 | Boiler Exhaust | CHP Boiler | E 115778, N 101158
A1-2 | | Boiler Exhaust | Vyncke Boiler | E 115775, N 101161
A1-3 | | Boiler Exhaust | Secondary Boiler | E 115715, N 101167
A1-4 | | Boiler Exhaust | Backup Boiler | E 115654, N 101169
A1-5 | | Boiler Exhaust | Standby Boiler | E 115710, N 101161
A1-6 | | Boiler Exhaust | Standby Boiler | E 115720, N 101161
A3-1 | | Generator Exhaust | Standby Diesel Generator | E 115692, N 100726
A3-2 | | Extraction Air | Vacuum Filters on Sawdust Collection System | E 115796, N 101183
A3-3 | | Extraction Air | Vacuum Filters on Sawdust Collection System | E 115795, N 101182
A3-4 | | Extraction Air | Vacuum Filters on Sawdust Transfer System | E 115800, N 101044
A3-5 | | Extraction Air | Extraction Vents on Manual Spray Painting Booths | E 115699, N 101167
A3-6 | | Extraction Air | Extraction Vents on Auto Spray Painting Plant | E 115684, N 101167
A3-7 | | Extraction Air | Extraction Vents on Teak Spraying Booths | E 115665, N 100995
A3-8 | | Extraction Air | Extraction Vents on Teak Spraying Booths | E 115654, N 100975
A3-9 | | Water Vapour | Wood Dryers Vents | E 115660, N 101104
A3-10 | | Water Vapour | Wood Dryers Vents | E 115696, N 101125
A4-1 | | Steam / Water Vapour | CHP Boiler Safety Relief Vent | E 115770, N 101148
A4-2 | | LPG | LPG Storage Tank Safety Relief Vent | E 116401, N 101158
A4-3 | | Sawdust Particles | Vacuum Filter Element Failure | E 115698, N 101165
A4-4 | | Sawdust Particles | Vacuum Filter Element Failure | E 115795, N 101102
A4-5 | | Sawdust Particles | Vacuum Filter Element Failure | E 116403, N 101041
SW-1 | ASW-1 | Treated Waste Water | Waste Water Treatment Discharge | E 116659, N 100955
SW-2 | ASW-2 | Site Surface Water | Collected Site Surface Water | E 115678, N 100990
SW-3 | ASW-3 | Site Surface Water | Collected Site Surface Water | E 115646, N 101173
SW-4 | | Site Surface Water | Run-off from Water from Staff Car Park | E 115808, N 100964
SL-1 | | Treated Sullage Water | Run-off from Water from Standby Generator Area | E 115698, N 100718
B | EMISSION LOCATIONS UPDATED | HK | RQ | HK | 26/02/07 | 26/02/07 | 26/02/07
A | PRELIMINARY ISSUE | HK | RQ | HK | 24/4/06 | 24/4/06 | 24/4/06
ISSUE | REVISION | REV BY | A | B | C | D | APPROVED | AD&S
Fingleton White & Co. Ltd
ENGINEERS & PROJECT MANAGERS
Bridge Street Centre, Portlaoise, Co. Laois, Ireland.
MUNSTER JOINERY
BALLYDESMOND Co. CORK IRELAND
PROJECT: MUNSTER JOINERY IPPC LICENCE
APPROVALS: A DRAWING OFFICE | B DESIGN | C | D CONSTRUCTION
TITLE: EMISSION & MONITORING POINTS
DATE: 26/02/07 | DRAWN BY: HK | CHECKED: RQ | ENGINEER: ML
SCALE 1:2000/A2 | Drawing Number 558-M-2500-04 | Sheet 1 of 1
RIVER BLACKWATER
FORD
N

APPENDIX 2 – Air Emissions Results



Emissions To Atmosphere Report

August 2009

Gairdini

Lacka Cross, Lackanastooka, Ballydesmond, Mallow, Co Cork.

Licence Number: P0639-02
Report Date: 26th August 2009

Report Number:
3020-09-04
Version 0

AXIS environmental services
40 Coolraine Heights, Old Cratloe Road, Limerick
Phone: 061 324587 Mobile: 087 6367436
Email: info@axisenv.ie

Report for the Periodic Monitoring of Emissions to Air

Part 1:	Executive Summary
IPC Licence No:	P0639-02
Operator:	Gairdini
Installation:	Lacka Cross, Lackanastooka, Ballydesmond, Mallow, Co. Cork
Contact Name:	Tim O Leary
Contact No.	064 51151
Contract Technician:	Mark Mc Garry
Monitoring Dates:	24th August 2009
Monitoring Organisation:	AXIS environmental services
Address:	40 Coolraine Heights, Old Cratloe Road, Limerick
Date of Report:	26th August 2009
Report Approved By:	Mark Mc Garry
MCERTS Reg. No.	**MM05 573**
Function:	Environmental Manager
Signed:	

Contents

1 Part 1: Executive Summary

1.1 Monitoring Objectives

Monitoring was carried out on a range of stacks at the installation as part of survey to determine the proportion of particulates emitted from stack A1-1. In addition flue gas analysis was carried out on the same stack.

1.2 Special Monitoring Requirements

Communication was maintained with on site representatives to ensure all emission points were operating as normal during each monitoring period. Attention was paid to breaks, lunch and batch processes i.e. production dryers.

1.3 Summary of Methods

Substance	Standard Method	SOP
Flow Rates	EN 13284-1	AXOP01
Oxygen	ISO 12039	AXOP05
Moisture	EN 14790	AXOP16
Particulates	EN 13284-1	AXOP03

1.4 Monitoring Results – A1-1

This table presents atmospheric emissions from analysis undertaken on behalf of Gairdini. Gas was measured from sample positions downstream of any potential abatement systems.

Emission Point Reference: A1-1									
Substance to be Monitored	**Emission Limit Value**	**Periodic Monitoring Result**	**Units Reference Conditions 273 K, 101.3 kPa 11% O2, Dry**	**Stack Flow Rate Nm3/Hr 273 K, 101.3 kPa 11% O2, Dry**	**Limit Nm3/Hr**	**Date of Sampling**	**Sampling Start/End Times**	**Method Reference**	**Operating Status**
Particulates	20	6.8	mg/Nm^3	16,321	27,020	24/08/2009	10:38 – 11:08	EN13284-1	Operating As Normal
NO_x	250	188	mg/Nm^3			24/08/2009	10:00 - 10:30	ISO12039	
SO_2	-	<5	mg/Nm^3			24/08/2009	10:00 - 10:30	BS6069	
Smoke	<1	<1	Ringlemann Shade			24/08/2009	10:00 - 10:30	Ringlemann Chart	

Additional Information

The pre and post leak check were within the requirements of BS EN 13284-1 (Start – 450cc/min: End – 450 cc/min).
Isokinetic conditions during the run were -1.63% (within the recommended -5 to + 15% allowable in BS EN 13284-1).
Sampling position does meet the recommendations of the standard for distance up and downstream of the stack exit.
Angle of Flow with regard to duct axis: <15 degrees
Differential pressure at pitot tube: >5Pa
Ratio of maximum to minimum velocity: <3:1
There is no negative flow in the stack
Moisture content of the gas: 9.74 %
Stack Temperature: 196 Deg C
Actual Pressure: 96.838 kPa
Actual Flow rate of gas in the stack unadjusted for temperature and pressure: 31,962 m^3/hr

1.5 Operating Information

Emission Point Reference	Date	Process Type	Process Duration	Fuel	Feedstock	Abatement	Load	Comparison of operator CEMS and Periodic Monitoring Results			
								Substance	CEMS Result	Periodic Result	Units
A1-1	24-08-2009	-	Continuous	-	-	-	-	Particulates			mg/Nm^3

1.6 Monitoring Deviations

Emission Point Reference	Substance Deviations	Monitoring Deviations	Other Relevant Information
All	All substances requested by the Environmental Department and outlined in the quotation were monitored.	Monitoring was carried out in accordance with standard methods as quoted.	-

Report for the Periodic Monitoring of Emissions to Air

Part 2: Supporting Information

IPPC Number:	P0639-02
Operator:	Gairdini
Installation:	Lacka Cross, Lackanastooka, Ballydesmond, Mallow, Co. Cork
Monitoring Dates:	24th August 2009

Organisation and Monitoring Team Details

AXIS environmental services,
40 Coolraine Heights,
Old Cratloe Road,
Limerick.

Email:	info@axisenv.ie
Website:	www.axisenv.ie
Phone:	061 324587
Fax:	061 324587
Mobile:	087 6367436

Analytical Laboratories Used

1. None Required – Data is displayed on site.

Date of Report:	26th August 2009
Report Approved By:	Mark Mc Garry
MCERTS Reg. No.	MM05 573
Function:	Environmental Manager

Signed: .....

Appendix 1

Sampling Personnel

Team Leader	Mark Mc Garry	MCERTS	Level 2	MM05 573
Technician	Dean Sarsfield	MCERTS	Trainee	MM09 1002

Substances Monitored

Substance	Standard Method	SOP
Total Organic Compounds	EN 13526	AXOP06
Flow Rates	EN 13284-1	AXOP01
Oxygen	ISO 12039	AXOP05
Moisture	EN 14790	AXOP16

Equipment Checklist References

Equipment	Reference Number
TCR Tecora	AX002
Pump 1	AX006
Pump 2	AX007
Impinger system 2	AX020
IMR3000	AX001

Isokinetic sampling

Gairdini Ballydesmond A1-1

ET (hh:mm:ss)	Flow q'Va	Volume Vgn	Volume Vdn	Deviation DI
00:30:00	33.556	0.5746	0	-1.63

DUCT AND GAS SPECIFICATION			
Circular section			
Diameter		m :	1.000
Port		n° :	02
Down stream		m :	1.80000
Up stream		m :	7.50000
Molecular weight		kg/kmol :	29.528
Density		kg/m^3 :	1.317
CO2		% :	6.600
O2		% :	11.800
Water vapor content		kg/m^3 :	0.0
Water vapor ratio	rw	:	0.097
Ambient pressure		kPa :	97.84
SAMPLED VOLUMES			
Dry at gas meter	Vg	m^3 :	0.6484
Dry derived	Vdn	m^3 :	0.0000
Dry std. condition	Vgn	m^3 :	0.5746
Wet at measure plain	V'ga	m^3 :	1.0067
Nozzle diameter		mm :	8.000
Average flow q'Va		l/min :	33.556
Average flow q'Vn		l/min :	19.154
Average nozzle speed	v'N	m/s :	11.13
Average duct speed	v'a	m/s :	11.31
Total derived time	ETd	hh:mm:ss :	00:00:00
Total elapsed time	ETt	hh:mm:ss :	00:30:00
ISOKINETIC CONDITION			
ISO rate	v'N/v'a	:	0.98
ISO deviation	DI	% :	-1.63
DUCT FLOW RATE			
Moist actual	Q'Va	m^3/h :	31962.0
Moist standard	Q'Vn	m^3/h :	18243.9
Dry standard	QVn	m^3/h :	16321.0
AVERAGE VALUES			
Actual temperature	ta	°C :	184.31
Gas meter temperature	tg	°C :	24.55
Aux.1 temperature		°C :	300.00
Aux.2 temperature		°C :	300.00
Actual pressure		kPa :	96.838
Press. diff. Pitot		Pa :	68.426

APPEDNIX 3 – Solvent Management Plan

As agreed, Solvent Management Plan to follow