



Loughbeg

ANNUAL ENVIRONMENTAL REPORT

PFIZER LOUGHBEG

2008

IPPC Licence Registration P0010-04

**Pfizer Ireland Pharmaceuticals Ltd
Loughbeg,
Ringaskiddy,
Co. Cork.**

March 2009

CONTENTS

1.0 Introduction

- 1.1 Pfizer Loughbeg.
- 1.2 Company Environmental Policy Statement
- 1.3 Site description
- 1.4 Company organisation for environmental management

2.0 Summary information

- 2.1 Emissions to waters/sewer*
- 2.2 Emissions to Atmosphere*
- 2.3 Waste Management*
- 2.4 Agency Monitoring and Enforcement*
- 2.5 Energy consumption*
- 2.6 Water Consumption*
- 2.7 Environmental incidents*
- 2.8 Environmental complaints*
- 2.9 Submission of Summary Information*

3.0 Management of the Activity

- 3.1 Environmental Management System
- 3.2 Environmental Management Programme Report 2008.
- 3.3 Schedule of Objectives & Targets & Environmental Management Programme 2009
- 3.4 Solvent Management Plan (SMP)
- 3.5 Corrective Action
- 3.6 Responsibilities
- 3.7 Communications

4.0 Licence Specific Reports

- Noise Survey
- Sludge Analysis Report
- Groundwater Monitoring study.
- Fugitive Emission Study
- Integrity & Water tightness of all bunded structures and their penetration by water or other materials
- Testing & Inspection of underground tanks and sewer pipes.
- Solvent Management Plan
- Energy efficiency audit
- Review of residuals management plan

ANNUAL ENVIRONMENTAL REPORT 2008

- Statement of measures in relation to prevention of environmental damage and remedial actions (Environmental liabilities)
- Environmental Liabilities Risk Assessment review (every three years or more frequently as dictated by relevant on istle change including financial provisions)
- Report on the assessment of the efficiency of use of raw materials in processes and the reduction in waste generated
- Report on the progress made and proposals being developed to minimize water demand and the volume of trade effluent discharge

APPENDICES

Appendix 1	Facility Environment Policy
Appendix 2	Monitoring of Emissions to Sewer, Atmosphere and Surface Water
Appendix 3	Copy of section from hazardous waste log
Appendix 4	Environmental Incidents & Complaints
Appendix 5	AER Summary Information /PRTR Return
Appendix 6	Environmental Management Programme Report 2008
Appendix 7	Schedule of Objectives and Targets and Environmental Management Programme 2009.
Appendix 8	Solvent Management Plan
Appendix 9	Noise Survey.
Appendix 10	Sludge Analysis Report
Appendix 11	Groundwater monitoring data assessment
Appendix 12	Fugitive Emissions Study
Appendix 13	Integrity and water tightness of all bunded structures and their penetration by water or other materials.
Appendix 14	Testing and inspection of underground tanks and pipelines
Appendix 15	Energy efficiency audit
Appendix 16	Review of residuals management plan
Appendix 17	Statement of measures in relation to prevention of environmental damage and remedial actions (Environmental Liabilities)
Appendix 18	Environmental Liabilities Risk Assessment review (every three years or more frequently as dictated by relevant on istle change including financial provisions)
Appendix 19	Environment Health & Safety Department Organisation Chart

1.0 INTRODUCTION

1.1 Pfizer Loughbeg

IPPC Licence Register Number : P0010-04

Site name as per Licence : Pfizer Ireland Pharmaceuticals

Site location : Loughbeg,
Ringaskiddy,
Co. Cork.

In accordance with the IPPC directive and S.I. No 393 of 2004, the facility Activity codes are Class Code 5.16

The use of a chemical or biological process for the production of basic pharmaceutical products

and Class 11.1

the recovery or disposal of waste in a facility, within the meaning of the Act of 1996, which facility is connected or associated with another activity specified in this schedule is in respect of which a licence or revised licence under Part IV is in force or in respect of which a licence under the said Part is or will be required

1.2 Pfizer Loughbeg Environmental Policy Statement

Pfizer Loughbeg's (API & Tablet Facilities) management systems help to ensure that our company complies with all applicable regulatory requirements as a minimum. Our environmental management systems, which are certified to ISO14001:2004 and our safety management systems which are certified to OSHAS 18001, commits the site to continual improvement. This improvement is not solely a management responsibility, as every colleague is responsible for maintaining our commitment to continual environmental improvement. The facility Environment Policy is included in Appendix 1.

Pfizer Ireland Pharmaceuticals, Loughbeg Ireland, a division of Pfizer Corporation, manufactures pharmaceutical intermediates and finished products. Pfizer Ireland Pharmaceuticals, Loughbeg manages its operations on site in a manner designed to protect the health and safety of all its employees and contractors, protect the environment and members of the local community. The

ANNUAL ENVIRONMENTAL REPORT 2008

environment management system operates to minimise its impacts on the environment. This is achieved using the Environmental Management Program.

Pfizer Ireland Pharmaceuticals, Loughbeg operates and maintains programs to ensure that it:

- Designs, constructs, operates, maintains and manages its operations to high standards.
- Complies with all applicable regulatory and corporate environment health and safety protection requirements.
- Monitors and evaluates on a routine basis the site environment, health and safety protection programmes to assure high standards are being maintained.
- Promotes pollution prevention and waste minimisation by reusing and recycling materials.
- Continual improvement through the setting and monitoring of environmental objectives so as to facilitate:
 - Conservation and efficient use of water and energy
 - Continued compliance with aqueous discharges
 - Reduction/recycling of non hazardous waste generated on site as far as is practically possible
 - Minimisation of hazardous waste generated on site, as far as is practically possible
- Establishes and communicates with all employees and contractors standards for site environment, health and safety protection.
- Communicating the Environmental Policy to all colleagues and contractors and ensuring that it is available to the public
- Encourages the participation of all employees in environmental, health and safety protection programmes.

Pfizer Ireland Pharmaceuticals, Loughbeg is committed to continuous improvement of its environmental, health and safety performance by making it an integral part of all its operations.

1.3 Site description

Pfizer Loughbeg Ltd. is a multi purpose organic chemical synthesis plant capable of the custom manufacture of chemical products for the pharmaceutical industry. The plant can accommodate a wide range of complete chemical reactions and processes.

Synthesis of the various products takes place by batch processing under detailed and comprehensive cGMP (current Good Manufacturing Practice) disciplines.

- The production capacity resides in Production Building CB1 and CB2 (not in use currently). The following equipment is used in the production processes: reactor vessels, isolation filters, dryers and crystallisers together with ancillary piping, pumps, control equipment and services.
- A bulk tableting plant (also administered by Licence P0010-04) is located on the site. This facility incorporates an active pharmaceutical ingredient at the appropriate dose into a solid tablet suitable for ingestion.
- The Spray Dried dispersion (SDD) facility (not in use currently) will include processes which are physical in nature (dissolution and drying) and the dried product would then be sent offsite for tableting. There will be no chemical or biological processes involved.

Production operations carry out a number of unit operations:

Materials movement	Organic synthesis reactions
Liquid-liquid extraction	Distillation
Evaporation	Crystallisation
Solids separation	Drying
Granulation	Milling
Tablet pressing	Tablet coating

To support the production activities of the bulk and tablet facilities, a number of utilities are generated or used:

Steam generation	Electricity distribution from ESB supply
Mains water from Cork County Council	De-ionised & USP water generation
Compressed air generation	Nitrogen
Chilling systems	

ANNUAL ENVIRONMENTAL REPORT 2008

The site employs a number of measures to eliminate, reduce or abate pollution emissions:

Vent condensers	Low emission vacuum skids
Gas stream scrubber systems	Waste water treatment plant
Dryer gas recirculation / condensation systems	Aqueous pre-treatment plant
Particulate filters	Fire water retention pond
Off site recovery or disposal of waste streams	Solvent distillation systems
Evaporator systems	Thermal Oxidisers
Carbon adsorption abatement Systems	

In order to minimise emissions to atmosphere; the plant has installed a Thermatrix thermal oxidiser on emission point CB 2-01, a Durr thermal oxidiser on emission point CB 1-01 and a Carbon adsorb desorb unit on CB 1-02.

1.4 Company Organisation for Environmental Management

Responsibility for Environmental Affairs at Pfizer Loughbeg site:

- Environment Health & Safety Manager/ Environment Team Leader

Environment Department Personnel include:

- 1 Technical Specialist.
- Operations Supervisor
- 4 Environmental Operators.
- Systems & Auditing Officer
- 1 Environmental Officer

Appendix 19(a & b) presents the organisational structure of the Environment Health & Safety department at the API and Tablet Facilities Pfizer Loughbeg, Ringaskiddy, Co. Cork.

2.0 Summary Information

2.1 Emissions to waters/sewers

A summary of the figures recorded for emissions to waters/sewers from the plant for 2008 are included in Table 1a. The emissions data is based upon average monitoring data for each

ANNUAL ENVIRONMENTAL REPORT 2008

parameter. This figure was used to calculate yearly emission loading by multiplying by the annual flow. Table 1b details a summary of the toxicity testing conducted during 2008. The mass solvent emission emitted to water /sewer for 2008 is detailed in Table 1c.

6 non-compliances were recorded during 2008, see Table 2 below.

The facility monthly monitoring of emissions to sewer report is included in Appendix 2.

Table 1a Emissions to waters/sewers, 2008.

Parameter	Monitoring Frequency	Aver Daily Measurement Units 2008	Mass Emissions (kg) 2008	Mass Emissions (kg) 2007	% Compliance
Flow	Continuous	485m ³	176,408m ³	168,170m ³	100
*COD	Daily	624 mg/l	109994kg	61370 kg	100
Temperature	Continuous	19.9	Not applicable	Not applicable	---
*BOD	Weekly	70mg/l	12,349kg	7399kg	100
*Suspended solids	Daily	142mg/l	25062kg	14366 kg	99.0
*Total P(as P)	Daily	1.82mg/l	320kg	1149 kg	100
* NH ₃ (as N)	Daily	13mg/l	2356kg	1736 kg	100
*Total N as N	Monthly	14mg/l	2470kg	2303kg	91
Total Heavy Metals	Monthly	0.24mg/l	42kg	34 kg	100
Sulphates	Monthly	480mg/l	84,675kg	33129 kg	91
Fats, oil & grease	Monthly	7mg/l	1233kg	2018 kg	91
Detergents	Annually	0.02mg/l	3.53kg	13.5kg	100

ANNUAL ENVIRONMENTAL REPORT 2008

*Zinc	Monthly	0.21mg/l	37kg	17 kg	100
pH	Daily	6-9	6-9	6-9	---

Table 1b Toxicity Testing Summary, 2008

Date	Test Parameter	Test Species	No of Toxic Units	Licence Limit
09/01/08	48h LC 50	Tisbe battagliai	43.5	10
	48h LC 50	Tigriopus brevicornis	<3.1	10
31/03/08	96h LC 50	Scophthalmus maximus	4.2	10
02/04/08	48h LC 50	Tisbe battagliai	43.5	10
	48h LC 50	Tigriopus brevicornis	<3.1	10

Table 1c Solvent Emissions to waters/sewers Summary, 2008.

Solvent	Average Emissions mg/l 2008	Mass Emissions (SE1) Kgs 2008	Mass Emissions (SE1) Kgs 2007
Methanol	47	8291	<2186
Ethanol	<1	<176	<2186
Acetic acid	20.3	3581	<6727
Ethyl acetate	<1	<176	<84
Triethylamine	<5	<882	<2186
Acetone	6.54	1154	<841
IPA	<0.9	<159	<2018
MTBE	<56	<9879	<2354
THF	41	7233	<1345
Hexane	18.3	3228	<168
MDC	<0.75	<132	336
Toluene	<0.75	<132	<0.841

ANNUAL ENVIRONMENTAL REPORT 2008

Table 2 Details of non-compliance, 2008.

Date	28/01/08	26/03/08
Parameter	Ammonia (as N)	Toxicity
Emission Point Ref. No	SE1	SE1
Maximum Exceedence vs. Emission Limit Value	The ammonia concentration in the final effluent was 54mg/l vs licence limit of 50mg/l	Licence Limit 10 TU Results Tisbe Battagliani 40TU 43TU

Date	26/03/08																													
Parameter																														
Emission Point Ref. No	SE1																													
Maximum Exceedence vs. Emission Limit Value	Further to a conversation with Mr John Doheney this morning, please be advised that the scraper mechanism on one of the two clarifiers stopped operating at approx 16.30hrs on the 25/03/08. Pfizer believes that this is a Category 3 incident. All flow from the waste water treatment plant was diverted to the second clarifier as a result of the malfunction. <table><tr><th>Parameter</th><th>Mon 24th Composite</th><th>Tues 25th Composite</th><th colspan="2">Wed 26th Grab</th></tr><tr><td>NH₃ (mg/l)</td><td>86</td><td>71</td><td colspan="2">>50</td></tr><tr><td>COD (mg/l)</td><td>1650</td><td>6220</td><td>1710 (08.00)</td><td>1030 (12.00)</td></tr><tr><td>SS (mg/l)</td><td>490</td><td>2730</td><td>390 (08.00)</td><td>280 (12.00)</td></tr><tr><td>Flow (m3)</td><td>0 *</td><td>1307</td><td colspan="2">260**</td></tr></table> *The plant has been on divert due to poor plant performance particularly NH3 and suspended solids. ** Flow so far to-day The clarifier is expected to return to operation no later than Friday 4th April. At this point we have insufficient information to determine the limits which can be met, results to-morrow will help to estimate the limits which can be met during this interim period A full investigation into the cause of the issue is underway and appropriate corrective actions will be implemented based on the results of the investigation.					Parameter	Mon 24 th Composite	Tues 25 th Composite	Wed 26 th Grab		NH ₃ (mg/l)	86	71	>50		COD (mg/l)	1650	6220	1710 (08.00)	1030 (12.00)	SS (mg/l)	490	2730	390 (08.00)	280 (12.00)	Flow (m3)	0 *	1307	260**	
Parameter	Mon 24 th Composite	Tues 25 th Composite	Wed 26 th Grab																											
NH ₃ (mg/l)	86	71	>50																											
COD (mg/l)	1650	6220	1710 (08.00)	1030 (12.00)																										
SS (mg/l)	490	2730	390 (08.00)	280 (12.00)																										
Flow (m3)	0 *	1307	260**																											

ANNUAL ENVIRONMENTAL REPORT 2008

Date	05/07/08	08/10/08
Parameter	Suspended Solids	Flow
Emission Point Ref. No	SE1	SE1
Maximum Exceedence vs. Emission Limit Value	The suspended solids (SS) concentration in the final effluent (SE1) on the 05/07/08 was 360mg/l, the IPPC licence limit is 250 mg/l. The suspended solids result for 06/07/08 was in compliance.	The continuous sampler on Emission Point SE1 has developed an electrical problem which we are currently trying to resolve. There will be No 24hour composite sample available at 08.00hrs on 08/10/08 as a result. We propose to take a grab sample each morning until the issue has been resolved

Date	07/10/08
Parameter	Flow
Emission Point Ref. No	SE1
Maximum Exceedence vs. Emission Limit Value	We have been unable to contact you by telephone to inform you that the continuous sampler on Emission Point SE1 has developed an electrical problem which we are currently trying to resolve. There will be No 24hour composite sample available at 08.00hrs on 08/10/08 as a result. We propose to take a grab sample each morning until the issue has been resolved. We will inform you when the composite sample is operational again.

ANNUAL ENVIRONMENTAL REPORT 2008

Table 3 details a summary of the Surface Water Discharges during 2008

PARAMETER	pH	VISUAL INSPECTION	TOC mg/l	COD mg/l
SE2	N/A	N/A	N/A	N/A
SW3	5.28*-7.63	No issues	0-4	N/A
SW4	6.11-7.77	No issues	N/A	1-21
SW5	5.37-7.9	No issues	0-12	N/A

No Issues: The absence of any foreign matter within the surface water i.e. organics oils fats etc

*Note: In accordance with condition 3.9.2 of the license the discharge was diverted to the respective fire pond.

South Firewater Pond Diversion Report - 2008

Parameter	Q1	Q2	Q3	Q4	Total 2008	Total 2007
No of Diverts - TOC	24	7	0	1	32	2
No of Diverts - pH	3	6	2	0	11	2
Duration of Diverts - TOC	938	107	0	2	1047	4
Duration of Diverts - pH	180	1055	15	0	1250	10
% Period on Divert - TOC	0.72	0.08	0	0	0.2	0
% Period on Divert - pH	0.14	0.81	0.01	0	0.24	0.003
% Period on Divert - Total	0.86	0.9	0.01	0	0.44	0.004

North Firewater Pond Diversion Report - 2008

Parameter	Q1	Q2	Q3	Q4	Total 2008	Total 2007
No of Diverts - TOC	0	0	0	0	0	12
No of Diverts - pH	5	13	16	10	44	13
Duration of Diverts - TOC	0	0	0	0	0	394
Duration of Diverts - pH	83	432	5707	1293	7515	8065
% Period on Divert - TOC	0	0	0	0	0	0.1
% Period on Divert - pH	0.06	0.33	4.3	0.98	1.43	2.04
% Period on Divert - Total	0.06	0.33	4.3	0.98	1.43	2.14

ANNUAL ENVIRONMENTAL REPORT 2008

The facility monthly monitoring of emissions to surface water report is included in Appendix 2.

2.2 Emissions to Atmosphere

A summary of the figures recorded for emissions to atmosphere from the plant for 2008 are included in Table 4a. This data is based upon the monitoring data available for the facility. These figures were used to determine the actual yearly emission by multiplying the number of hours the process was in operation. Non-compliances recorded in 7for emissions to atmosphere from the site are detailed in Appendix 3 Environmental Incidents.

Table 4a Emissions to atmosphere, 2008.

Parameter	Monitoring frequency	Average Emission mg/m3 2008	Mass Emissions (mT) 2008	Mass Emissions (mT) 2007	% Compliance
VOC chlorinated	Monthly	<1.26	<0.14	0.107	100
VOC non-chlorinated	Monthly	<5.50	0.678	2.838	100
Particulates	Monthly	<0.15	0.00263	0	100
Dioxin	Please refer to correspondence to the Agency 07/01/08 indicating that it is not planned to conduct Dioxin monitoring on CB1-01 as chlorinated solvents are not vented through it.				
Ammonia	Please refer to the correspondence to the Agency 07/01/08 detailing that emission point CB 1-03 is not in use and the response from the Agency 15/01/08.				
Hydrogen Chloride	Monthly	2.23	0.79	-	100

Parameter	Monitoring frequency	Average Emission mg/m3 2008	Mass Emissions (mT) 2008	Mass Emissions (mT) 2007	% Compliance
Boilers:					
CO	Annual	1.8	54	366	100
NO _x	Annual	172.4	5172	1341	100
SO ₂	Annual	<4	<120	75	100

Note: ND = Not detected

The facility monthly monitoring of emissions to atmosphere report is included in Appendix 2.

ANNUAL ENVIRONMENTAL REPORT 2008

There were 5 atmospheric non-compliances in 2008 as detailed below:

Date	26/02/08											
Parameter	TOC											
Emission Point Ref. No	CB1-02											
Maximum Exceedence vs. Emission Limit Value	Further to my telephone conversation with Mr Caoimhin Nolan yesterday, the following TOC readings were recorded at CB1-02 on the morning of 26/2/08. <table><tr><td>CB1-02</td><td>Time</td><td>TOC Result mg/m3</td></tr><tr><td></td><td>06.00 – 06.30</td><td>204</td></tr><tr><td></td><td>06.30 – 07.00</td><td>293</td></tr></table> The issue arose due to an incorrect charge of hot water to the CB1-02 scrubber. Production was immediately shutdown in a safe manner and did not recommence until 09.00hrs when the issue had been identified and rectified. TOC results then reverted to within the normal range.			CB1-02	Time	TOC Result mg/m3		06.00 – 06.30	204		06.30 – 07.00	293
CB1-02	Time	TOC Result mg/m3										
	06.00 – 06.30	204										
	06.30 – 07.00	293										
Date	07/03/088											
Parameter	TOC											
Emission Point Ref. No	CB1-02, CB1-02, DR 1-03											
Maximum Exceedence vs. Emission Limit Value	Further to our telephone conversation yesterday, please be advised that the programme recording the TOC from CB 1-01, CB1-02, DR 1-03 shut down due to operator error. The TOC trends for CB1-01, CB1-02 are available on DCS (computer control system), however information for DR1-03 is not available. The following corrective actions are currently being implemented: - the shut down option on the control panel is being removed/de-activated (Completion date 31/03/08) - security protection to be installed on the control screen.											

ANNUAL ENVIRONMENTAL REPORT 2008

Date	18th & 19th June 2008
Parameter	TOC
Emission Point Ref. No	DR 1-03
Maximum Exceedence vs. Emission Limit Value	High TOC readings in excess of the ELV were recorded, between June 18-19, on emission point DR1-03. This was due to the failure of heat tracing on the TOC analyser sample line. The fault was repaired and the TOC readings reverted to normal.
Date	21/11/08
Parameter	TOC
Emission Point Ref. No	DR 1-03
Maximum Exceedence vs. Emission Limit Value	Further to my telephone message this morning , I would like to inform the Agency that on the 20 th November, a number of high TOC readings were observed on the Dryer emission point DR1-03 which were in excess of the licence limits . The cause of these high half hourly averages are currently under investigation.

2.3 Waste Management

Pfizer Loughbeg, Ringaskiddy, maintains a full record of all waste arising on site. From this information it is possible to compile a yearly summary of all hazardous waste and non-hazardous waste arisings. Table 5 presents the annual total for hazardous and non hazardous waste produced on the API (Bulk) site and Table 6 presents the annual total for hazardous and non hazardous waste produced on the Drug Product (Tablet -DP) site presents the annual total for non-hazardous waste..

A copy of the waste record will not be dispatched to the Agency as per agreement with the Agency (letter to the EPA 07/01/08 and EPA response 15/01/08).

The following information is included in Appendix 3:

- A sample from the site waste database for 2008

European Waste Catalogue Code	Hazardous (Yes/No)	Description of Waste	Quantity (t/year)	Location of Disposal/ Recovery	Treatment Facilities Licences / Permits	Issuing Authority	Haulier	Collection Permit Details	Agent
16 06 04	No	Alkaline Batteries	3.48	KMK Metals Recycling , Cappincur Ind. Est., Daingean Road, Tullamore, Co. Offaly, Ireland	Waste Licence 113/1	EPA	Indaver	CK WMC 65/01	Indaver Ireland
20 01 08	No	General Waste	99.03	Veolia Environmental Services, Forge Hill - Kinsale Road , Co. Cork	Waste Licence 173/1	EPA	Veolia Ireland	CK WMC 10/01	Veolia / AVR
20 01 01	No	Cardboard	7.74	Veolia Environmental Services, Forge Hill - Kinsale Road , Co. Cork	Waste Licence 173/1	EPA	Veolia Ireland	CK WMC 10/01	Veolia / AVR
15 01 04	No	Crushed Metal Drums	5.66	Cork Metal , Cork	Waste Permit CK 08/01	Cork County Council	Cork Metals	CK WMC26/01	Cork Metal

Table 6 Loughbeg API waste generation 2008

European Waste Catalogue Code	Hazardous (Yes/No)	Description of Waste	Quantity (t/year)	Location of Disposal/ Recovery	Treatment Facilities Licences / Permits	Issuing Authority	Haulier	Collection Permit Details	Agent
20 01 02	No	Glass	3.58	Rehab Recycling Partnership, Cork	Waste Permit 635/03/02	South Council County Council	Indaver	CK WMC 65/01	Indaver Ireland
20 01 40	No	Metal/Steel	38.7	Cork Metal , Cork	Waste Permit CK 08/01	Cork County Council	Cork Metals	CK WMC26/01	Cork Metal
20 01 01	No	Paper	18.646	CCS Cork Ltd, Blarney Business Park, Co. Cork	Waste Permit CK (8) 30 /02	Cork County Council	Confidential Recycling	CK WMC. 127/02	Cork Confidential Shredding
07 05 12	No	Sludge	1389.9	AVR-Safeway Environmental Services, Foxhole, Youghal, Co Cork, Ireland	Waste Licence WL0211/01	Cork County Council	Quick Sharp	CK WMC 129/02	Veolia / AVR
07 05 12	No	Sludge	52.82	Minane Bridge	Waste Permit CK (s) 08/03;	Cork County Council;	Quick Sharp	CK WMC 129/02	Indaver Ireland
15 01 03	No	Timber Pallets	46.08	Veolia Environmental Services, Forge Hill - Kinsale Road , Co. Cork	Waste Licence 173/1	EPA	Veolia Ireland	CK WMC 10/01	Veolia / AVR
15 01 10	Yes	Empty Drums	7.36	AVR-Safeway Ltd Fermoy, Co. Cork	Waste Licence 50 / 02	Environmental Agency	Southcoast	CK WMC 07/01	Veolia / AVR
15 01 10	Yes	Contaminated Packaging - Liners	23.28	Sonderabfallverbrennungsanlagen GmbH (SAVA) , Osterweute 1, 25541 Brunsbüttel , Germany	No Number	Environment Agency	Southcoast Transport	CK WMC 07/01	Veolia / AVR

Table 6 Loughbeg API waste generation 2006

European Waste Catalogue Code	Hazardous (Yes/No)	Description of Waste	Quantity (t/year)	Location of Disposal/ Recovery	Treatment Facilities Licences / Permits	Issuing Authority	Haulier	Collection Permit Details	Agent
20 01 21	Yes	Fluorescent Tubes	0.56	Irish Lamps ,Black Park, Kilkenny Rd. Athy, Co. Kildare	Waste Permit 02/2000A	Kildare County Council	Irish Lamps, Athy, Co Kildare	CK WMC 57/01	Veolia / AVR
11 01 13*	Yes	Kerosene	0.37	Safety Kleen	EPA	Safety Kleen	CPD160/1A	Safety Kleen	
16 05 06*	Yes	Lab Smalls	1.28	AVR-Safeway Ltd Fermoy, Co. Cork	Waste Licence 50 / 02	Environmental Agency	Southcoast	CK WMC 07/01	Veolia / AVR
16 05 06*	Yes	Lab Smalls	3.11	Sonderabfallverbr ennungsanlagen GmbH (SAVA) , Osterweute 1, 25541 Brunsbüttel , Germany	No Number	Environment Agency	Southcoast Transport	CK WMC 07/01	Veolia / AVR
18 01 03	Yes	Medical Waste	0.008	Ecosafe Dublin	Waste Licence 54/2	EPA	Health Care Waste Management	CK WMC 37/01	Veolia / AVR
16 08 07*	Yes	Palladium Catalyst	36.88	Johnson Mathey, UK	AN8712 Variation BC 3196	Environmental Agency	Southcoast	CK WMC 07/01	Veolia / AVR
07 05 13*	Yes	Solids & Packaging (contaminated liners, filters, empty drums of TEA, DIPA, 4 fluorobenzald ehyde)	11.81	AVR-Safeway Ltd Fermoy, Co. Cork	Waste Licence 50 / 02	Environmental Agency	Southcoast	CK WMC 07/01	Veolia / AVR

Table 6 Loughbeg API waste generation 2006

European Waste Catalogue Code	Hazardous (Yes/No)	Description of Waste	Quantity (t/year)	Location of Disposal/ Recovery	Treatment Facilities Licences / Permits	Issuing Authority	Haulier	Collection Permit Details	Agent
07 05 13*	Yes	Solids & Packaging (contaminated liners, filters, empty drums of TEA, DIPA, 4 fluorobenzald ehyde)	312.06	Sonderabfallverbr ennungsanlagen GmbH (SAVA) , Osterweute 1, 25541 Brunsbüttel , Germany	No Number	Environment Agency;	Southcoast Transport	CK WMC 07/01	Veolia / AVR
16 08 02*	Yes	Spent Nickel Catalyst	60.14	Nickelhutte Aue GmbH., Sachen, Germany	No Permit Number	Regierungspras idium Dresden	South Coast	CK WMC 50/01	Veolia / AVR
07 05 04*	Yes	TK -21-22	1980.5	Pfizer Ringaskiddy, Cork	IPPC licence	EPA	Southcoast Transport	CK WMC 07/01	None
07 05 04*	Yes	TK -21-22	37.06	SRM , Middleton Rd , Morecambe, Lancashire , UK	No Details	UK Environment Agency	Southcoast Transport	CK WMC 07/01	Veolia / AVR
07 05 04*	Yes	TK -21-22	79.18	AVR-Safeway Ltd Fermoy, Co. Cork	Waste Licence 50 / 02	Environmental Agency	Southcoast	CK WMC 07/01	Veolia / AVR
07 05 04*	Yes	TK -21-22	903.72	Dow Haltermann	AG8420 variation BK7978	Environment Agency;	Southcoast Transport	CK WMC 07/01	Veolia / AVR
07 05 04*	Yes	TK -21-23	76.22	AVR-Safeway Ltd Fermoy, Co. Cork	Waste Licence 50 / 02	Environmental Agency	Southcoast	CK WMC 07/01	Veolia / AVR
07 05 04*	Yes	TK-21-01	1682.9 8	AVR-Safeway Ltd Fermoy, Co. Cork	Waste Licence 50 / 02	Environmental Agency	Southcoast	CK WMC 07/01	Veolia / AVR
07 05 04*	Yes	TK-21-01	114.06	GVS GmbH , Essener Str 64 , Mannheim ,	No number	German Entsorgungsfachbetriebs	Southcoast Transport	CK WMC 07/01	Veolia / AVR

Table 6 Loughbeg API waste generation 2006

European Waste Catalogue Code	Hazardous (Yes/No)	Description of Waste	Quantity (t/year)	Location of Disposal/ Recovery	Treatment Facilities Licences / Permits	Issuing Authority	Haulier	Collection Permit Details	Agent
				Germany					
07 05 04*	Yes	TK-21-01	22.96	Sonderabfallverbr ennungsanlagen GmbH (SAVA) , Osterweute 1, 25541 Brunsbüttel , Germany	No Number	Environment Agency;	Southcoast Transport	CK WMC 07/01	Veolia / AVR
07 05 04*	Yes	TK-21-02	1079.7	AVR-Safeway Ltd Fermoy, Co. Cork	Waste Licence 50 / 02	Environmental Agency	Southcoast	CK WMC 07/01	Veolia / AVR
07 05 04*	Yes	TK-21-02	20.32	SRM , Middleton Rd , Morecambe, Lancashire , UK	No Details	UK Environment Agency	Southcoast Transport	CK WMC 07/01	Veolia / AVR
07 05 04*	Yes	TK-21-16	1168.8	AVG, Borsigstrasse 2, D-22113, Hamburg	No Detail;	German Authority;	JP Ryans	CK WMC 34/01	Indaver Ireland
07 05 04*	Yes	TK-21-16	3568.6	AVR-Safeway Ltd Fermoy, Co. Cork	Waste Licence 50 / 02	Environmental Agency	Southcoast	CK WMC 07/01	Veolia / AVR
07 05 04*	Yes	TK-21-16	141.32	Kommunekemi A/S Lindolmvej 3,DK5800 Nyborg,Denmark	No Licence Number	Danish EPA	JP Ryan	CK WMC 34/01	Indaver Ireland
07 05 04*	Yes	TK-21-16	154.32	SRM, Middleton Rd , Morecambe, Lancashire , UK	No Details	UK Environment Agency	Southcoast Transport	CK WMC 07/01	Veolia / AVR
07 05 04*	Yes	TK-21-18	162.9	AVR-Safeway Ltd Fermoy, Co. Cork	Waste Licence 50	Environmental Agency	Southcoast	CK WMC 07/01	Veolia / AVR

Table 6 Loughbeg API waste generation 2006

European Waste Catalogue Code	Hazardous (Yes/No)	Description of Waste	Quantity (t/year)	Location of Disposal/ Recovery	Treatment Facilities Licences / Permits	Issuing Authority	Haulier	Collection Permit Details	Agent
					/ 02				
07 05 04*	Yes	TK-21-18	2001.3	SRM Hendon Docks , Sunderland, England	No Details	UK Environment Agency	Southcoast Transport	CK WMC 07/01	Veolia / AVR
07 05 03*	Yes	TK-21-29	307.32	SRM Ltd., Rye Harbour, East Sussex, TN317 TE, England	AG8039 / AH 3881 variation AS 6675 ;	Environment Agency;	Southcoast Transport	CK WMC 07/01	Veolia / AVR
07 05 01*	Yes	TK-21-31	13.36	NV Afvalverwerking Rijnmond , Rotterdam-Botlek, NL	340618/11.20 05;	DCMR Milieudienst Rijnmond;	Southcoast Transport	CK WMC 07/01	Veolia / AVR
07 05 01*	Yes	TK-21-32	39.62	AVR-Safeway Ltd Fermoy, Co. Cork	Waste Licence 50 / 02	Environmental Agency	Southcoast	CK WMC 07/01	Veolia / AVR
07 05 01*	Yes	TK-21-32	74.04	Sonderabfallverbr ennungsanlagen GmbH (SAVA) , Osterweute 1, 25541 Brunsbüttel , Germany	No Number	Environment Agency;	Southcoast Transport	CK WMC 07/01	Veolia / AVR
20 01 27	Yes	Waste paints	4.296	Sonderabfallverbr ennungsanlagen GmbH (SAVA) , Osterweute 1, 25541 Brunsbüttel ,	No Number	Environment Agency	Southcoast Transport	CK WMC 07/01	Veolia / AVR

Table 6 Loughbeg API waste generation 2006

European Waste Catalogue Code	Hazardous (Yes/No)	Description of Waste	Quantity (t/year)	Location of Disposal/ Recovery	Treatment Facilities Licences / Permits	Issuing Authority	Haulier	Collection Permit Details	Agent
				Germany					
16 02 13*	Yes	WEEE	1.44	KMK Metals Recycling , Cappincur Ind. Est., Daingean Road, Tullamore, Co. Offaly, Ireland	Waste Licence 113/1	EPA	Indaver	CK WMC 65/01	Indaver Ireland

Table 6 Loughbeg DP waste generation 2008

European Waste Catalogue Code	Hazardous (Yes/No)	Description of Waste	Quantity (t/year)	Location of Disposal/ Recovery	Treatment Facilities Licences / Permits	Issuing Authority	Haulier	Collection Permit Details	Agent
16 06 04	No	Alkaline Batteries	0.08	KMK Metals Recycling , Tullamore, Co. Offaly, Ireland	Waste Licence 113/1	EPA	Veolia Environmental Services, Forge Hill, Cork	CK WMC 10/01	Veolia / AVR
07 05 14	No	Solid wastes other than those listed in 070513	46.68	Veolia Environmental Services, Forge Hill - Kinsale Road , Co. Cork	Waste Licence 173/1	EPA	Veolia Ireland	CK WMC 10/01	Veolia / AVR
15 01 02	No	Recyclable material - plastic	7.78	Veolia Environmental Services, Forge Hill - Kinsale Road , Co. Cork	Waste Licence 173/1	EPA	Veolia Ireland	CK WMC 10/01	Veolia / AVR

Table 6 Loughbeg DP waste generation 2008

European Waste Catalogue Code	Hazardous (Yes/No)	Description of Waste	Quantity (t/year)	Location of Disposal/ Recovery	Treatment Facilities Licences / Permits	Issuing Authority	Haulier	Collection Permit Details	Agent
15 01 01	No	Recyclable material - fibreboards, cardboard	70.04	Veolia Environmental Services, Forge Hill - Kinsale Road , Co. Cork	Waste Licence 173/1	EPA	Veolia Ireland	CK WMC 10/01	Veolia / AVR
15 01 07	No	Glass	8.69	Rehab Recycling Partnership, Cork	Waste Licence 03 /07	Cork City Council	Rehab Recycling Partnership, Cork	CK WMC 146/03	Rehab
15 01 04	No	Aluminium Cans	0.09	Rehab Recycling Partnership, Cork	Waste Licence 03 /07	Cork City Council	Rehab Recycling Partnership, Cork	CK WMC 146/03	Rehab
20 01 40	No	Metal/Steel	40	Cork Metal , Cork	Waste Permit CK (S) 204/05	Cork County Council	Cork Metals	CK WMC26/01	Cork Metal

Table 6 Loughbeg DP waste generation 2006

European Waste Catalogue Code	Hazardous (Yes/No)	Description of Waste	Quantity (t/year)	Location of Disposal/ Recovery	Treatment Facilities Licences / Permits	Issuing Authority	Haulier	Collection Permit Details	Agent
20 01 01	No	Paper	15.15	Rehab Recycling Partnership, Cork	Waste Licence 03 /07	Cork City Council	Rehab Recycling Partnership, Cork	CK WMC 146/03	Rehab
15 01 03	No	Timber Pallets	9.82	Veolia Environmental Services, Forge Hill - Kinsale Road , Co. Cork	Waste Licence 173/1	EPA	Veolia Ireland	CK WMC 10/01	Veolia / AVR
08 03 18	No	Printer Toner Cartridges	1.14	Source Imaging Supplies, Tipperary, IRL	Waste Licence 124/06	Offaly County Council	Veolia Ireland	CK WMC 10/01	Veolia / AVR
17 01 07	No	Construction & Demolition Waste	110.75	Veolia Environmental Services, Forge Hill - Kinsale Road , Co. Cork	Waste Licence 173/1	EPA	Veolia Ireland	CK WMC 10/01	Veolia / AVR
20 01 21	Yes	Fluorescent Tubes	0.15	Irish Lamps ,Black Park, Kilkenny Rd. Athy, Co. Kildare	Waste Permit 02/2000A	Kildare County Council	Irish Lamps, Athy, Co Kildare	CK WMC 57/01	Veolia / AVR
07 05 13	Yes	Tabletting Waste	67.38	Pyros Environmental, Charlston Rd, Hardley, Southampton, UK	AG8047 NoEXP, TWE/ 673232/CB	UK Environmental Authority	Southcoast Transport	CK WMC 07/01	Veolia / AVR
07 05 99	Yes	Cellulose Liquid waste from tabletting process	101.12	AVR-Safeway, Corrin, Fermoy, Co. Cork	Waste Licence W-0050-02	EPA	Southcoast Transport	CK WMC 07/01	Veolia / AVR

Table 6 Loughbeg DP waste generation 2006

European Waste Catalogue Code	Hazardous (Yes/No)	Description of Waste	Quantity (t/year)	Location of Disposal/ Recovery	Treatment Facilities Licences / Permits	Issuing Authority	Haulier	Collection Permit Details	Agent
16 05 06	Yes	Lab Smalls	2.92	AVR-Safeway Ltd Fermoy, Co. Cork	Waste Licence W-0050-02	EPA	Southcoast Transport	CK WMC 07/01	Veolia / AVR
18 01 03	Yes	Medical Waste	2.38	SRCL Ireland, Dublin 12	Waste Licence 55/2	EPA	Transafe	CK WMC 08/01	Veolia / AVR
16 02 13	Yes	WEEE	2.9	KMK Metals Recycling , Tullamore, Co. Offaly, Ireland	Waste Licence 113/1	EPA	KMK Metals Recycling , Tullamore, Co. Offaly, Ireland	CK WMC 84/01	Veolia / AVR
20 01 27	Yes	Waste paints	0.45	Sonderabfallverbrennungsanlagen GmbH (SAVA) , Osterweute 1, 25541 Brunsbüttel , Germany	No Number	Environment Agency	Southcoast Transport	CK WMC 07/01	Veolia / AVR
13 02 09	Yes	Waste Oils	0.21	Sonderabfallverbrennungsanlagen GmbH (SAVA) , Osterweute 1, 25541 Brunsbüttel , Germany		Environment Agency	Southcoast Transport	CK WMC 07/01	Veolia / AVR

NOTE :

1. Fibre keg details included in the waste volume in the tablet plant
2. Solvent waste from the tablet plant included in the volumes for TK 21-01
3. Cooking oil for the tablet plant is included in the API details
4. LODP's food waste volumes are included in the API's general waste volumes

ANNUAL ENVIRONMENTAL REPORT 2008

2.4 Agency Monitoring and Enforcement

The Agency conducted the following monitoring during the year:

Monitoring Type	Monitoring Date	Issue with results
Atmospheric Monitoring	28/5/08	No
Aqueous Monitoring	22/4/08 26/11/08	No No
Surface Water	10/3/08 (SW3)	No

There were no significant differences between Pfizer Loughbeg API and Agency monitoring results.

A site inspection was completed on 01/10/08 by Ms Niamh O' Donoghue (Site Inspector). The site was found to be in non-compliance with the conditions of the IPPC licence.

Non compliance	Corrective Action
Monitoring of emissions to sewer at SE1 requires weekly BOD analysis and daily total phosphorous and suspended solids analysis. Analysis data from the 27th-31st July, 18th-26th August, 18th April, 6th May, 2nd February -07th March 2008 was reviewed. A number of issues with the analysis methodologies were noted. In the BOD analysis the initial dissolved oxygen reading in the sample is not taken. The reading from the blank is used for calculation purposes. In the total phosphorous analysis all samples are diluted by 50. If a zero value is obtained the result is reported as zero. In the suspended solids analysis only 10mls of sample is used in all effluent analysis runs. None of these procedures would comply with standard methodology and good laboratory practice for this type of analysis. Results obtained would not accurately reflect emissions as discharged. In the lab workbook, data on a number of days had not been signed by the analyst (e.g. 18th April 2008, 6th May 2008), a number of values in the workbook on several days had been amended, the signature of whom has amended the results was not recorded. A number of total phosphorous values had been corrected for a x50 dilution when No dilution factor was recorded in the workbook. The sample sent for VOC analysis as SE1 on the 20th June 2008 to Bodycote (Consultus) noted a MTBE result of 65,200ug/l. This value is well above typical values for this effluent. This is a non-compliance with Condition 6.2	A review of site procedures will be completed to ensure that they meet with the requirements of all conditions of the licence. Site procedures will be revised and operational by January 31st, 2009. Complete. All analysis is now signed by the relevant analyst and all amendments to the data are signed. A review of MDL values is currently underway and test method will be revised as necessary on completion of the review

ANNUAL ENVIRONMENTAL REPORT 2008

	The investigation is currently underway, the outcome of this investigation and any corrective action will be submitted to the Agency
Air Emission data (Feb – Aug 08, CB1-01, CB1-02 & DR1-03) The MDL for the reported results for VOCs in the period referenced above varied from 0.06 to 0.33, although the analysis methodology stayed the same.	THIS ACTION IS CLOSED The external consultant has clarified the variation in the MDL of the test methods as follows; Results from the lab are divided by the volume sampled. The limit of detection is 10ug. So if they do not find anything on the tube they report that there is less than 10ug. The concentration in these cases is 10ug divided by the volume sampled in Litres. The Volume sampled can vary. The sampling rate varies between 0.5l/min to 2l/min so the total volume can vary between 15l to 120l. The minimum needed is 5l. With the less than concentrations, the lower the concentration the more volume was sampled. Atmospheric emission monitoring sampling and analysis is completed in accordance with CEN standard 13649.
Bund Integrity Tests The AER for the facility listed bunds 4A, 4D and R as requiring integrity testing in 2008. These were however done in 2007. All were found to be in compliance. 17 bunds were tested in 2008 and all found to meet their integrity requirements. The status of these bunds in the Schedule of bunds had however not been updated.	THIS ACTION IS NOW CLOSED. Bund Register Updated to reflect the actual test dates of the bunds
Underground Pipe Integrity Tests The site process drains were tested in June 2005 and were due for retest in February 2008. The foul drains were tested in February 2006 and are due for retest in February 2009. The process drains have not been tested to date in 2008.	THIS ACTION IS NOW CLOSED. In order to test the process drains the entire plant requires to be shutdown. As there was no shut down in 2008 the drains were not available for testing. Testing will be scheduled for a shutdown during 2009.
Drainage System Weekly Inspection Reports Condition 6.10 of the licence requires a weekly inspection of the oil separator on site, to date this has not been conducted.	THIS ACTION IS NOW CLOSED. The onsite Facilities 9team has developed a weekly inspection report and will begin documented weekly inspections of the oil separator on week commencing 03 November 2008.
Incident reports Records of Incidents as defined by the glossary in the licence are not maintained in a single record. By passes are recorded in the electronic SIMS systems	THIS ACTION IS NOW CLOSED. All incidents are recorded and reports maintained. A separate section has been included in the - EPA correspondence and Public Information files (*2) files for incidents
Annual Environmental Report (AER) There were a number of typographical errors and inconsistencies in the AER namely: - the toxicity summary states 100% compliance for Tisbe, however it is listed as a non-compliance on the next page - the hazardous waste EWC codes are quoted both with and without the hazardous asterisk	THIS ACTION IS NOW CLOSED. The AER for 2008 will be reviewed by all prior to submission to the Agency

ANNUAL ENVIRONMENTAL REPORT 2008

- the emission to sewer summary table reports results as zero instead of less than the appropriate MDL. - In the solvent report table both methylene chloride and DCM are used. One term should be used consistently. - In Appendix 4 the TO bypasses are the only incident type reported, however incidents are defined in the glossary of the licence and all incidents in accordance with this definition should be reported in this summary	
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2.5 Energy Consumption

A summary of energy consumption for 2008 is presented in Table 7.

Table 7 Energy Consumption, 2008.

Year	Natural gas (m3)	Electricity (kWh)	Heavy Fuel Oil	Light Fuel Oil	Coal
1999	6,557,994	29,847,000			
2000	10,853,104	49,448,000			
2001	106.34 GWh 9,873,723 m3	53,540,000			
2002	8,758,936	54,063,974			
2003	7,213,419	51,647,128			
2004	6,216,283*	49,492,695		14,830	
2005	6,162,246**	51,334,688		20,419	
2006	6,404,100	50,860,000		7,463	
2007	5,640,100	46,657,788			
2008	5692350***	45,479,944		5633	

Note:

The figures detailed are for all of the facility (inc. Tablet)

* 2004 figure is calculated at 2003 energy conversion factor

** 2005 figure is calculated at 2003 energy conversion factor

***2008 figure is calculated at 2008 ETS factors for m3 normalisation

Energy consumption per mT of product

Location	Performance Indicator	Value 2008	Value 2007	unit
API	Energy	182.3	130.8	MWh/Mt
DP(Tablet)	Energy	21.72	25.3	MWh/Mt
All Loughbeg	Energy	46.85	47.1	MWh/Mt

A site-wide energy aspects review was carried

ANNUAL ENVIRONMENTAL REPORT 2008

CB2 HVAC Detailed Energy assessment was carried out

Files are stored in IS393 shared site folder.

2.6 Water Consumption

A summary of water consumption for 2008 is presented in Table 8.

Table 8 Water Consumption 2008

Year	On-site ground water	On site surface water	Municipal Water (m3)
1999	N/A	N/A	432,601
2000			558,478
2001			656,158
2002			582,183
2003			515,774
2004			449,339
2005			473,243
2006			284,717
2007			250,485
2008			261,199

Note:

The figures detailed are for all of the facility (inc. Tablet)

Water consumption/mT product

Location	Performance Indicator	Value 2008	Value 2007	unit
API	Water	57125	424.6	M3/Mt
DP(Tablet)	Water	25.71	28.2	M3/Mt
All Loughbeg	Water	1118	110.0	M3/Mt

2.7 Environmental Incidents

A summary of all environmental incidents reported in 2008 is detailed in Appendix 4.

2.8 Environmental Complaints

There was 0 environmental complaints reported to the Agency in 2008. Details are provided in Appendix 4.

2.9 Submission of Summary Information /PRTR Return

Summary information was uploaded to the EPA website on 24th March 2008 using the template downloaded from the EPA website.

A copy of the summary information/PRTR is included in Appendix 5.

3.0 MANAGEMENT OF THE ACTIVITY

3.1 Environmental Management System

Pfizer Loughbeg has established an Environmental Management System to ensure that the effects of the company's activities conform to its Environmental Policy and Environmental Objectives.

Documentation System:

The company has a documented system, which includes the following components:

- (i) Correspondence Tracking File; E.P.A., C.C.C. and WL Corporate.
- (ii) Environmental Procedures & cGMP Procedures;
- (iii) Batch Records/ Operating Instructions
- (iv) Process Environmental Document
- (v) New Process Application file
- (vi) Monthly Reports File
- (vii) Self Assessment / Audits file
- (viii) Public Information file
- (ix) Waste Tanker Tracking File
- (x) Waste Disposal Contractors Licences
- (xi) Waste Disposal Contractors Audit Schedule
- (xii) Skip Disposal Records
- (xiii) Training Records
- (xiv) Environmental Management Programme & Report Records
- (xv) Guide to the Theory, Operation & Monitoring of the Activated Sludge WWTP .
- (xvi) Register of Regulations and Legislation.
- (xvii) Groundwater File

This system has been developed to ensure that the site fulfils the requirements of the current IPPC Licence and ISO 14001 and will be expanded if necessary to meet the requirements of all future site IPPC Licences and revisions of the ISO 14001 standard.

3.2 Environmental Management Programme Report 2008:

The facility EMP report for 2008 is included in Appendix 6.

3.3 Schedule of Objectives & Targets & Environmental Management Programme 2009:

The facility EMP incorporating the schedule of objectives and targets is included in Appendix 7.

3.4 Solvent Management Plan (SMP)

Pfizer Loughbeg proposed to conduct a full mass balance on solvents used on site. The Solvent Management Plan for 2008 is included in Appendix 8.

3.5 Corrective Action:

Environmental procedure Env 001 'Environmental Incident Reporting to the EPA, Pfizer Corporate & Other Regulatory Bodies' details the corrective action to be taken should the specified requirements of Licence No P0010-04 not be fulfilled. The responsibility and authority for initiating further investigation and corrective action in the event of a reported non-conformity with this Licence lies with the Environmental Health & Safety Department and the appropriate department managers.

3.6 Responsibilities:

The *person in charge* as defined under the terms of the Environmental Protection Agency Act are as follows:

Day time hours:

Finbarr Fitzgerald:	Environment Health & Safety Manager
Paraic Butler:	Environmental Team Leader
Jennifer Quinn:	Site Leader

Or their delegates.

Silent Hours & / or Weekends:

Senior Supervisor on duty.

3.7 Communications:

Environmental procedure number Env 003 'Environmental Public Access to Information Programme' details the mechanism by which members of the public can obtain information concerning the environmental performance of the site.

4.0 Licence Specific Reports

All additional reports are included in the following appendices:

Noise Survey

ANV Technology was commissioned to carry out an environmental noise survey, to determine compliance with the noise limits in IPPC licence P0010-04.

Measurements were made on the 6th August 2008 at two positions: the “beach” position D, and the nearest noise sensitive residence, referred to as “the cliff”, at Loughbeg, located 300m west of the plant.

The survey methodology followed the Environmental Protection Agency (EPA) “Environmental Noise Survey Guidance Document” (2003), EPA “Guidance Note for Noise in Relation to Scheduled Activities” (2006), and ISO 1996 “Description and measurement of environmental noise”.

The measurement duration at each location was 15 minutes during both daytime and night-time. A summary of noise terminology is given in Appendix A.

Compliance with IPPC Limits

Beach Position:

The IPPC licence P0010-04 specifies a daytime limit of 55 dB(A), and a nighttime limit of 47 dB(A) at the beach position D.

The noise emissions from the Pfizer Loughbeg site complied with these limits during both daytime and nighttime.

Cliff Position:

The IPPC licence P0010-04 specifies a daytime limit of 55 dB(A), and a nighttime limit of 45 dB(A) at the nearest noise sensitive location.

The noise emissions from the Pfizer Loughbeg site complied with the daytime limit.

During the nighttime survey the industrial noise audible at the Cliff position was due to a combination of Pfizer noise and GSK noise. The total industrial noise component detected at this position during the nighttime survey was 48 dB(A). The noise attributable to Pfizer was determined to be 45 dB(A), and in compliance with the limit.

Comparison with previous survey

Measurements have been made at the beach position since 1999, and a summary of nighttime specific noise levels is presented in Table 2. There has been no detectable systematic change in plant emissions at the Beach position in recent years.

Slight inconsistencies can be explained by two factors: differing meteorological conditions, and variable industrial noise emissions.

The report is included in Appendix 9.

Sludge analysis report.

Sludge analysis is conducted in accordance with Schedule C.4 of the IPPC Licence. Sludge analysis is required on a quarterly basis and is detailed in Appendix 10.

Groundwater Monitoring Summary.

Groundwater monitoring is a requirement of Condition 6.14 and Schedule C (6) of the IPPC Licence. Monitoring is required on a bi-annual basis on the monitoring and extraction wells:

Monitoring Wells: 2 wells
Extraction Wells: 2 wells

The groundwater report for 2008 is detailed in Appendix 11.

Fugitive emissions study.

A fugitive emissions study was not completed during 2008 as the site sale process was ongoing.

A fugitive emission study will be completed in 2009 as part of the licence requirements and is Objective 3.0 in the Environmental Management Programme for 2008. (Appendix 12)

Integrity and water tightness of all bunded structures and their penetration by water or other materials.

Appendix 13 details the bunds, which have been tested.

Testing and inspection of underground tanks and pipelines

Appendix 14 details the status of the Underground tank and pipelines testing programme.

Energy efficiency audit

A site-wide energy aspects review was carried out
CB2 HVAC Detailed Energy assessment was carried out
Files are stored in IS393 shared site folder should EPA request them

A summary of the energy efficiency audit are detailed in Appendix 15

Review of residuals management plan

A residuals management plan was submitted to the Agency on 07/04/08 in accordance with Condition 10.2 and 10.3 of the licence requirements.

The plan will be reviewed annually thereafter. (Appendix 16)

Annual Statement of measures in relation to prevention of environmental damage and remedial actions (Environmental Liabilities) (Appendix 17)

Environmental Liabilities Risk Assessment review (every three years or more frequently as dictated by relevant on site change including financial provisions)

An Environmental Liabilities Risk Assessment was submitted to the Agency on 6/10/08 in accordance with Condition 12.3 of the licence requirements. The ELRA will then be reviewed as necessary to reflect significant change on site, and in any case every three years in accordance with Licence requirements (Appendix 18)

Report on the assessment of the efficiency of use of raw materials in processes and the reduction in waste generated

Objective 6.0 in the Environmental Management Programme for 2008 tracks this objective (Appendix 7)

Please also refer to section 2.6 of this report.

In light of the site's announcement to close/sell the facility, process improvement works are not currently being undertaken. In the event that the site is sold, this objective will be revisited and targets will be developed.

Report on the progress made and proposals being developed to minimize water demand and the volume of trade effluent discharge

Please refer to No 5 in the Environmental Management Programme for 2008 in Appendix 7

APPENDIX 1:

Facility Environment Policy



ENVIRONMENT, HEALTH & SAFETY POLICY

At Pfizer Loughbeg Drug Product Plant we are fully committed to conducting all aspects of our business in a Healthy, Safe and environmentally sound manner. We recognise that these three elements of the business are a fundamental and integral part of all our activities.

As part of our commitment to Environment, Health and Safety we will:

- ❖ Continually seek new ways to improve our Health, Safety and Environmental performance.
- ❖ Aspire to have zero injuries.
- ❖ Place the highest value on the Safety, Health and Welfare of ourselves and each other.
- ❖ Develop and implement Environmental, Health and Safety procedures and management systems to provide guidance and understanding of our systems and to comply with Corporate, European and Irish standards.
- ❖ On an ongoing basis, assess the Environmental & Health & Safety risks and impacts of our operation, activities and products; take steps to control or minimize those risks and impacts and plan for responsible management of improvements and emergencies. From an environmental perspective, the underlying principle of such an assessment will be a commitment to preventing pollution.
- ❖ Monitor performance and adherence to Environmental, Health and Safety guiding principles and this policy through audits and inspection programmes.
- ❖ Provide awareness, training, communication/tracking systems, transparency and open dialogue in Health, Safety and Environmental matters.
- ❖ Review all changes to design, activities, plant and equipment.
- ❖ Reduce and recycle waste through system improvements and consultation with vendors and recycling companies.
- ❖ We will foster and promote a positive safety culture throughout the facility.

Tom Murphy EHS Manager

Helen Walshe Site Leader



Pfizer Ireland Pharmaceuticals Loughbeg API

Environmental and Energy Policy Statement.

Pfizer Ireland Pharmaceuticals, Loughbeg API, a division of Pfizer Global Manufacturing, manufactures pharmaceutical products and intermediates. Pfizer Ireland Pharmaceuticals, Loughbeg API manages its operations on site in a manner so as to facilitate the protection of the environment and conservation of energy. The environmental management system operates to minimise its impacts on the environment and conform to the internationally recognised environmental standard, ISO 14001:2004. The energy management system operates to ensure the conservation of energy resources and to conform to the Irish Standard IS 393:2005.

Pfizer Ireland Pharmaceuticals, Loughbeg API is committed to:

Continual improvement through the setting and monitoring of objectives so as to facilitate:

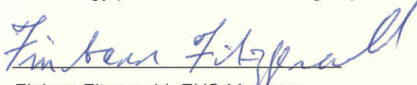
- Setting specific energy reduction targets on an annual basis
- Conservation and efficient use of water
- Continued compliance with aqueous discharges and emissions to atmosphere
- Reduction / recycling of non hazardous waste generated on site, as far as is practically possible
- Minimisation of hazardous waste generated on site, as far as is practically possible

Preventing pollution and complying with all applicable environmental and energy related legislation, Corporate EHS guidelines and other requirements which relate to the site's environmental and energy aspects.

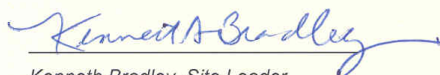
Communicating the Environmental and Energy Policy to all colleagues and contractors and ensuring that it is available to the public as part of the Public Information File.

Ensuring that all colleagues and contractors on site are aware of their responsibility regarding environmental and energy procedures and their requirements.

Pfizer Ireland Pharmaceuticals, Loughbeg API is committed to ensuring that environmental and energy performance is an integral part of all its operations.


Finbarr Fitzgerald, EHS Manager

Date: 29 JAN 07


Kenneth Bradley, Site Leader

Date: 29-JAN-07

Revision 6, 29th January 2007

APPENDIX 2:

Monitoring of Emissions to Sewer, Atmosphere and Surface Water

ANNUAL ENVIRONMENTAL REPORT 2008

Report: Emissions to Sewer Monitoring
Period: Jan-08
Company: Pfizer Loughbeg

Address: Loughbeg, Co.Cork
Telephone: 021-4378788

Licence No.: P0010-04

Sample Type: DAILY COMPOSITE

DATE	FLOW	BOD	COD	S.S	TOTAL N (as N)	NH3 (as N)	TOTAL P (as P)	pH	ZINC	TOTAL HEAVY METALS	SULPHATES	FATS,OILS GREASES	DETERGENTS
	m ³	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l		mg/l	mg/l	mg/l	mg/l	mg/l
Licence limit	1800	2000	3000	250	100	50	200	6-9	1	1	700	10	5
Licence freq.	Daily	Weekly	Daily	Daily	Monthly	Daily	Daily	Daily	Monthly	Monthly	Annually	Monthly	Annually
01-Jan-08	458		100	180		14	5	7.5					
02-Jan-08	441	45	200	80		16	3	7.5					
03-Jan-08	436		340	150		8	0	7.5					
04-Jan-08	395		280	190		3	0	7.5					
05-Jan-08	547		310	200		7	0	8					
06-Jan-08	459		300	100		3	0	7.5					
07-Jan-08	357		670	120		12	1.5	7.4					
08-Jan-08	394		860	160		25	25	7.6					
09-Jan-08	501	150	1100	210		29	0	7.6					
10-Jan-08	477		940	130		34	5	7.6					
11-Jan-08	534		1450	230		41	2	7.6					
12-Jan-08	499		1470	240		48	0	7.6					
13-Jan-08	391		1840	200		45	2	7.6					
14-Jan-08	389		1670	90		20.3	24.5	7.6					
15-Jan-08	427		120	120		33	0	7.6					
16-Jan-08	507	19	860	240		38	0	7.6					
17-Jan-08	602		470	170		4	0	7.7					
18-Jan-08	540		210	220		0	26	7.8					
19-Jan-08	486		190	220		0	0	7.8					
20-Jan-08	417		400	200		0	0						
21-Jan-08	1229		490	210		0	1	7.9					
22-Jan-08	1035		250	180		2	0	7.8					
23-Jan-08	1177	121	210	180		1	4	7.5					
24-Jan-08	1047		40	160	9.4	4	2	7.8	0.34	0.48	3072	<10	0.03
25-Jan-08	681		170	140		11	4	7.9					
26-Jan-08	396		220	180		14	7	8.1					
27-Jan-08	527		270	140		26	2	8.0					
28-Jan-08	338		290	160		54	0	8.0					
29-Jan-08	463		250	210		50	0	7.9					
30-Jan-08	21	6	70	190		47	0	7.9					
31-Jan-08	0		50	150		45	2	7.8					
Average	524	68	519	173	9	20	4	8	0.34	0.48	3072	<10	0.03
Maximum	1229	150	1840	240	9.4	54	26	8.12	0.34	0.48	3072	<10	0.03
Minimum	0	6	40	80	9.4	0	0	7.37					
No. of non-Compliances	0	0	0	0	0	0	0	0	0	0	1	0	0
% Compliance Monthly	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%
% Compliance year to date	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%

Technical Specialist

A. Asha

Environmental, Health and Safety Manager

P. B. J. G.

ANNUAL ENVIRONMENTAL REPORT 2008

Report: Emissions to Sewer Monitoring
Period: Feb-08
Company: Pfizer Loughbeg

Address: Loughbeg, Co.Cork
Telephone: 021-4378788

Licence No.: P0010-04

Sample Type: DAILY COMPOSITE

DATE	FLOW m ³	BOD mg/l	COD mg/l	S.S mg/l	TOTAL N (as N) mg/l	NH3 (as N) mg/l	TOTAL P (as P) mg/l	pH	ZINC mg/l	TOTAL HEAVY METALS mg/l	SULPHATES mg/l	FATS,OILS GREASES mg/l	DETERGENTS mg/l
Licence limit	1800	2000	3000	250	100	50	200	6-9	1	1	700	10	5
Licence freq.	Daily	Weekly	Daily	Daily	Monthly	Daily	Daily	Daily	Monthly	Monthly	Annually	Monthly	Annually
01-Feb-08	0		450	340		30	0	7.9					
02-Feb-08	0		260	330		29	0	8.0					
03-Feb-08	0		310	230		25	0	8.1					
04-Feb-08	0		70	220		23.9	1	8.12					
05-Feb-08	0		320	320		23.4	6	8.1					
06-Feb-08	0		300	110		31	5	7.9					
07-Feb-08	1248	55	180	200		13	7	7.7					
08-Feb-08	1475		250	220		5	0	7.8					
09-Feb-08	1391		410	180		3	0	7.8					
10-Feb-08	1283		220	230		26	0	8.1					
11/02/2008*	486		630	170		0.5	0	7.9					
12/02/2008*	397		670	230		1	7	7.9					
13-Feb-08	451	18	850	170		2	6	7.8					
14-Feb-08	498		650	230		2	9	7.8					
15-Feb-08	474		260	220		0	1	7.9					
16-Feb-08	416		250	240		2	0	7.8					
17-Feb-08	385		280	220		0	0	7.9					
18-Feb-08	263		600	240		2.4	6	7.8					
19-Feb-08	415		650	230		0	3	7.9					
20-Feb-08	483	49.7	490	250		3	4	7.9					
21-Feb-08	507		490	250		1	0	7.9					
22-Feb-08	478		110	230		2	0	7.7					
23-Feb-08	427		360	210		1	4	7.8					
24-Feb-08	412		200	210		1	5	7.8					
25-Feb-08	395		290	230		1.5	2.5	7.8					
26-Feb-08	368		560	210		3	4	7.8					
27-Feb-08	497	64.2	530	210	15.3	3	3	7.8	0	0.17	357	10	0.04
28-Feb-08	563		690	250		4	6	7.7					
29-Feb-08	478		1150	290		19	40	7.8					
Average	476	47	430	230	15	9	4	8	0	0	357	10	0
Maximum	1475	64.2	1150	340	15.3	31	40	8.12	0	0.17	357	10	0.04
Minimum	0	18	70	110	15.3	0	0	7.72	0	0.17	357	10	0.04
No. of non-Compliances	0	0	0	0	0	0	0	0	0	0	0	0	0
% Compliance Monthly	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% Compliance year to date	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%

Technical Specialist

A. Asho

Environmental, Health and Safety Manager

M. Butler

* grab sample as per letter to EPA 12/02/2008

ANNUAL ENVIRONMENTAL REPORT 2008

Report: Emissions to Sewer Monitoring
Period: Mar-08
Company: Pfizer Loughbeg

Address: Loughbeg, Co.Cork
Telephone: 021-4378788

Licence No.: P0010-04

Sample Type: DAILY COMPOSITE

DATE	FLOW	BOD	COD	S.S	TOTAL N (as N)	NH3 (as N)	TOTAL P (as P)	pH	ZINC	TOTAL HEAVY METALS	SULPHATES	FATS,OILS GREASES	DETERGENTS
	m ³	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l		mg/l	mg/l	mg/l	mg/l	mg/l
Licence limit	1800	2000	3000	250	100	50	200	6.9	1	1	700	10	5
Licence freq.	Daily	Weekly	Daily	Daily	Monthly	Daily	Daily	Daily	Monthly	Monthly	Annually	Monthly	Annually
01-Mar-08	455		1020	220		24	13	7.6					
02-Mar-08	428		910	250		29	9.5	7.8					
03-Mar-08	407		760	190		23	0.5	7.8					
04-Mar-08	519		590	240		20.3	0	7.7					
05-Mar-08	524		600	170		17	8	7.7					
06-Mar-08	572	66	880	130		15	0	7.7					
07-Mar-08	480		360	200		19.8	7.5	7.7					
08-Mar-08	427		200	180		28	10	7.7					
09-Mar-08	397		440	190		26	6	7.8					
10-Mar-08	540		630	200		28	0	7.7					
11-Mar-08	466		790	170		42	1	7.7					
12-Mar-08	463	56	730	190		51	11	7.7					
13-Mar-08	139		140	140	26.2	52	0	7.6	0.07	0.13	187.00	<10	0.04
14-Mar-08	0		970	280		70	4	7.6					
15-Mar-08	0		230	230		81#	5	7.6					
16-Mar-08	0		280	280		71#	2	7.6					
17-Mar-08	0		1070	370		37	4	7.7					
18-Mar-08	0		870	#		70.3#	2.5	8.0					
19-Mar-08	0	74	900	380		90#	3	7.6					
20-Mar-08	0		970	410		100#	3	7.8					
21-Mar-08	0		1340	420		100#	10	7.8					
22-Mar-08	0		1500	390		100#	9	7.7					
23-Mar-08	0		1910	420		110#	0	7.8					
24-Mar-08	0		1650	490		86#	6	7.8					
25/03/2008*	1307		6220	2730		71	10	7.9					
26-Mar-08	1427	56	1320	280		61	0	7.9					
27-Mar-08	1804		1110	330		79	0	7.9					
28-Mar-08	1651		1640	260		76	0	8.0					
29-Mar-08	739		1750	520		103	0	8.0					
30-Mar-08	456		1350	490		106	0	8.0					
31-Mar-08	434		920	290		75	2	7.9					
Average	440	63	1098	368	26	48	4	8	0.07	0.13	187	<10	0.04
Maximum	1804	74	6220	2730	26.2	106	12.5	8	0.065	0.13	187	<10	0.04
Minimum	0	56	140	0		0	0	7.55					
No. of non-Compliances	1	0	1	1	0	1	0	0	0	0	0	0	0
% Compliance Monthly	97%	100%	97%	97%	100%	97%	100%	100%	100%	100%	100%	100%	100%
% Compliance year to date	66.60%	100%	66.60%	66.60%	100%	66.60%	100%	100%	100%	100%	66.60%	100%	100%

Technical Specialist

A. Delo

Environmental, Health and Safety Manager

P. Burke

sample not discharged

* Letter sent to EPA on 26-3-08 regarding this issue

ANNUAL ENVIRONMENTAL REPORT 2008

Report: Emissions to Sewer Monitoring
Period: Feb-08
Company: Pfizer Loughbeg
Address: Loughbeg, Co Cork
Telephone: 021-4378788
Licence No.: P0010-04
Sample Type: DAILY COMPOSITE

DATE	FLOW	BOD	COD	S.S	TOTAL N (as N)	NH3 (as N)	TOTAL P (as P)	pH	ZINC	TOTAL HEAVY METALS	SULPHATES	FATS,OILS GREASES	DETERGENTS
	m ³	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l		mg/l	mg/l	mg/l	mg/l	mg/l
Licence limit	1800	2000	3000	250	100	50	200	6-9	1	1	700	10	5
Licence freq	Daily	Weekly	Daily	Daily	Monthly	Daily	Daily	Daily	Monthly	Monthly	Annually	Monthly	Annually
01-Feb-08	0		480	340		30	0	7.9					
02-Feb-08	0		260	330		29	0	8.0					
03-Feb-08	0		310	230		25	0	8.1					
04-Feb-08	0		70	220		23.9	1	8.12					
05-Feb-08	0		320	320		23.4	6	8.1					
06-Feb-08	0		300	110		31	5	7.9					
07-Feb-08	1248	55	180	200		13	7	7.7					
08-Feb-08	1475		250	220		5	0	7.8					
09-Feb-08	1391		410	180		3	0	7.8					
10-Feb-08	1283		220	230		26	0	8.1					
11/02/2008*	486		630	170		0.5	0	7.9					
12/02/2008*	397		670	230		1	7	7.9					
13-Feb-08	451	18	850	170		2	6	7.8					
14-Feb-08	498		650	230		2	9	7.8					
15-Feb-08	474		260	220		0	1	7.9					
16-Feb-08	416		250	240		2	0	7.8					
17-Feb-08	385		280	220		0	0	7.9					
18-Feb-08	263		600	240		2.4	6	7.8					
19-Feb-08	415		660	230		0	3	7.9					
20-Feb-08	483	49.7	490	250		3	4	7.9					
21-Feb-08	507		490	250		1	0	7.9					
22-Feb-08	478		110	230		2	0	7.7					
23-Feb-08	427		360	210		1	4	7.8					
24-Feb-08	412		200	210		1	5	7.8					
25-Feb-08	395		290	230		1.5	2.5	7.8					
26-Feb-08	368		560	210		3	4	7.8					
27-Feb-08	497	64.2	530	210	15.3	3	3	7.8	0	0.17	357	10	0.04
28-Feb-08	563		690	250		4	6	7.7					
29-Feb-08	478		1150	290		19	40	7.8					
Average	476	47	430	230	15	9	4	8	0	0	357	10	0
Maximum	1475	64.2	1150	240	15.3	31	40	8.12	0	0.17	357	10	0.04
Minimum	0	18	70	110	15.3	0	0	7.72	0	0.17	357	10	0.04
No. of non-Compliances	0	0	0	0	0	0	0	0	0	0	0	0	0
% Compliance	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% Compliance year to date	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%

Technical Specialist

A. A. A.

Environmental, Health and Safety Manager

P. B. F. C.

* grab sample as per letter to EPA 12/02/2008

ANNUAL ENVIRONMENTAL REPORT 2008

Report: Emissions to Sewer Monitoring
Period: Apr-08
Company: Pfizer Loughbeg
Address: Loughbeg, Co.Cork
Telephone: 021-4378766
Licence No.: P0010-04
Sample Type: DAILY COMPOSITE

DATE	FLOW m ³	BOD mg/l	COD mg/l	SS mg/l	TOTAL N (as N) mg/l	NH3 (as N) mg/l	TOTAL P (as P) mg/l	pH	ZINC mg/l	TOTAL HEAVY METALS mg/l	SULPHATES mg/l	FATS,OILS GREASES mg/l	DETERGENTS mg/l
Licence limit	1800	2000	3000	250	100	50	200	6-9	1		700	10	5
Licence freq.	Daily	Weekly	Daily	Daily	Monthly	Daily	Daily	Daily	Monthly	Monthly	Annually	Monthly	Annually
01-Apr-08	580		720	460		166	10	7.9					
02-Apr-08	586	188	1360	420		169	0	7.9					
03-Apr-08	613		1150	280		167	0	7.9					
04-Apr-08	551		1920	230		119	2	8.0					
05-Apr-08	492		990	330		7	7	7.9					
06-Apr-08	426		710	170		108	1	7.9					
07-Apr-08	508		560	140		110	2	7.9					
08-Apr-08	480		310	220		104	6	8.0					
09-Apr-08	557		530	220		50	0	8.0					
10-Apr-08	559	49.9	500	240		43	3	8.0					
11-Apr-08	573		350	250		26	0	8.1					
12-Apr-08	607		510	260		38	10	8.1					
13-Apr-08	497		220	180		41	0	8.0					
14-Apr-08	444		440	180		55	2	7.9					
15-Apr-08	613		90	180		30	0	7.9					
16-Apr-08	485		320	190		38	0	8.1					
17-Apr-08	463	49.9	300	140		45	0	8.1					
18-Apr-08	415		470	190		35	0	8.0					
19-Apr-08	427		400	150		29	0	7.9					
20-Apr-08	385		550	170	38.50	49	6	8.1	0.05	0.22	413.00	74.00	<0.01
21-Apr-08	613		580	120		27	2	7.9					
22-Apr-08	453		450	180		35.3	0	7.9					
23-Apr-08	488	22.7	540	170		37	6	7.7					
24-Apr-08	613		380	220		35	2	7.9					
25-Apr-08	478		170	240		36	0	8.2					
26-Apr-08	494		330	170		19	1	8.8					
27-Apr-08	462		470	260		24	1	8.2					
28-Apr-08	569		630	180		20	1	8.1					
29-Apr-08	551		640	150		27.7	0	7.9					
30-Apr-08	534	27.2	550	160		31	1	7.9					
Average	517	68	574	215	39	57	2	8	0.05	0.22	413	<10	<0.01
Maximum	613	188	1920	460	38.5	169	10	8.8	0.05	0.22	413	<10	<0.01
Minimum	385	22.7	90	120		6.5	0	7.74				<10	<0.01
No. of non-Compliances	0	0	0	0	0	0	0	0	0	0	0	1	0
% Compliance Monthly	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%
% Compliance year to date	75%	100%	75%	75%	100%	75%	100%	100%	100%	100%	75%	75%	100%

Technical Specialist

A. Asho

Environmental, Health and Safety Manager

P. S. 16

ANNUAL ENVIRONMENTAL REPORT 2008

Report: Emissions to Sewer Monitoring
Period: May-08
Company: Pfizer Loughbeg
Address: Loughbeg, Co.Cork
Telephone: 021-4378788
Licence No.: P0010-04
Sample Type: DAILY COMPOSITE

DATE	FLOW m ³ Daily	BOD mg/l 3000 Weekly	COD mg/l 3000 Daily	S.S mg/l 250 Daily	TOTAL N (as N) mg/l 100 Monthly	NH3 (as N) mg/l 20 Daily	TOTAL P (as P) mg/l 200 Daily	pH	ZINC mg/l 1 Monthly	TOTAL HEAVY METALS mg/l 1 Monthly	SULPHATES mg/l 700 Annually	FATS,OILS GREASES mg/l 10 Monthly	DETERGENTS mg/l 5 Annually
Licence limit	1800							6-9					
Licence freq.	Daily	Weekly	Daily	Daily	Monthly	Daily	Daily	Daily	Monthly	Monthly	Annually	Monthly	Annually
01-May-08	596		520	110		32	2	8.1					
02-May-08	564		490	190		27	6	7.9					
03-May-08	512		590	150		19	0	7.9					
04-May-08	562		610	200		22	0	7.8					
05-May-08	568		520	170		13	0	7.4					
06-May-08	594		610	150		8	0	7.4					
07-May-08	695	35	700	200		2	1	7.9					
08-May-08	647		2280	120		0	2	7.6					
09-May-08	606		310	90		3	0	7.6					
10-May-08	541		1040	150		4	0	7.8					
11-May-08	512		600	110		4	1	7.9					
12-May-08	609		920	180		0	3	7.8					
13-May-08	666		680	110		0.2	0	7.9					
14-May-08	661	24	1310	100		0	0	7.9					
15-May-08	505		910	80		0	1	7.8					
16-May-08	621		650	80		2	1	7.7					
17-May-08	536		840	110		5	0	7.8					
18-May-08	574		680	130		4	2	7.9					
19-May-08	571		880	160		4	0	7.9					
20-May-08	641		430	120	13.1	3	0	7.7	0.27	0.48	234.00	<10	0.02
21-May-08	694	45	960	140		2	0	7.0					
22-May-08	650		570	150		0	2	7.4					
23-May-08	601		780	140		0	3	7.7					
24-May-08	522		1170	160		0	3	7.9					
25-May-08	505		700	120		0	5	7.8					
26-May-08	527		490	40		0	0	8.0					
27-May-08	694		820	160		0.7	2	7.8					
28-May-08	668	35	1040	150		0	1	7.8					
29-May-08	694		460	120		0	0	7.8					
30-May-08	696		310	130		1	1	7.8					
31-May-08	578		490	160		3	2	7.8					
Average	603	35	763	135	13	5	1	8	0.267	0.48	234	<10	0.02
Maximum	696	45	2280	200	13.1	32.4	5.5	8.1	0.267	0.48	234	<10	0.02
Minimum	505	24	310	40	13.1	0	0	6.97	0.267	0.48	234	<10	0.02
No. of non-Compliances	0	0	0	0	0	0	0	0	0	0	0	0	0
% Compliance Monthly	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% Compliance year to date	80%	100%	80%	80%	100%	80%	100%	100%	100%	100%	80%	80%	100%

Technical Specialist

A. L. L. L.

Environmental, Health and Safety Manager

P. Butler

ANNUAL ENVIRONMENTAL REPORT 2008

Report: Emissions to Sewer Monitoring
Period: Jun-08
Company: Pfizer Loughbeg
Address: Loughbeg, Co.Cork
Telephone: 021-4378788
Licence No.: P0010-04
Sample Type: DAILY COMPOSITE

DATE	FLOW m ³	BOD mg/l	COD mg/l	S.S. mg/l	TOTAL N (as N) mg/l	NH3 (as N) mg/l	TOTAL P (as P) mg/l	pH	ZINC mg/l	TOTAL HEAVY METALS mg/l	SULPHATES mg/l	FATS,OILS GREASES mg/l	DETERGENTS mg/l
Licence limit	1800	2000	3000	250	100	50	200	6-9	1	1	700	10	5
Licence freq.	Daily	Weekly	Daily	Daily	Monthly	Daily	Daily	Daily	Monthly	Monthly	Annually	Monthly	Annually
01-Jun-08	611		820	270		5	4	7.6					
02-Jun-08	490		640	150		1	2	6.1					
03-Jun-08	556		390	80		0	2	7.9					
04-Jun-08	687	33	630	100		4	0	7.8					
05-Jun-08	669		440	130		5	0	7.6					
06-Jun-08	610		350	150		4	0	7.7					
07-Jun-08	645		420	180		3	3	7.7					
08-Jun-08	625		510	100		4	0	7.7					
09-Jun-08	538		540	130		5	2.5	7.8					
10-Jun-08	564		910	110		4.5	1	7.6					
11-Jun-08	493	87	630	130		1	4	7.8					
12-Jun-08	635		1070	110		1	2	7.8					
13-Jun-08	589		940	230		0	3	7.8					
14-Jun-08	485		660	230		1	3	7.8					
15-Jun-08	453		610	200		1	5	7.9					
16-Jun-08	493		650	150		0	1	7.9					
17-Jun-08	513		360	130		0.6	0	7.9					
18-Jun-08	562	150	820	160		0	4	7.8					
19-Jun-08	599		1050	160		0	4	7.9					
20-Jun-08	514		740	130		0	0	7.7	0.42	0.86	210.00	<10	0.05
21-Jun-08	532		680	100		0	0	7.7					
22-Jun-08	474		620	90		0	0	7.8					
23-Jun-08	550		230	90		0	4	7.5					
24-Jun-08	554		520	80		0	6	7.6					
25-Jun-08	549		440	150		1	3	7.5					
26-Jun-08	557	24	150	160		1	1	7.7					
27-Jun-08	515		450	200		0	0	7.7					
28-Jun-08	428		450	210		0	2	7.6					
29-Jun-08	472		630	210		0	0	7.5					
30-Jun-08	417		580	110		0	2	7.4					
Average	546	74	598	148	*	1	2	7.66	0.421	0.86	210	<10	0.047
Maximum	687	150	1070	270	*	4.9	6	7.92	0.421	0.86	210	<10	0.047
Minimum	417	24	150	80	*	0	0	6.1	0.421	0.86	210	<10	0.047
No. of non-Compliances	0	0	0	0	1	0	0	0	0	0	0	0	0
% Compliance Monthly	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%	100%	100%	100%
% Compliance year to date	83%	100%	83%	83%	83%	83%	100%	100%	100%	100%	83%	83%	100%

Technical Specialist

A. Asle

Environmental, Health and Safety Manager

P. S. 16

* sample not requested to be tested for total nitrogen when sent to the contracting laboratory

ANNUAL ENVIRONMENTAL REPORT 2008

Report: Emissions to Sewer Monitoring
Period: Jul-08
Company: Pfizer Loughbeg
Address: Loughbeg, Co.Cork
Telephone: 021-4375788
Licence No.: P0010-04
Sample Type: DAILY COMPOSITE

DATE	FLOW m ³	BOD mg/l	COD mg/l	S.S mg/l	TOTAL N (as N) mg/l	NH3 (as N) mg/l	TOTAL P (as P) mg/l	pH	ZINC mg/l	TOTAL HEAVY METALS mg/l	SULPHATES mg/l	FATS,OILS GREASES mg/l	DETERGENTS mg/l
Licence limit	1800	2000	3000	250	100	50	200	6-9					
Licence freq.	Daily	Weekly	Daily	Daily	Monthly	Daily	Daily	Daily	Monthly	Monthly	Annually	Monthly	Annually
01-Jul-08	436		550	150		0	3	7.4					
02-Jul-08	515	42	860	160		0	2	7.6					
03-Jul-08	567		610	130		0	1	7.6					
04-Jul-08	586		920	230		0	1	7.7					
05-Jul-08	520		1290	360		1	1	7.6					
06-Jul-08	522		910	210		0	0	7.7					
07-Jul-08	506		510	230		1	1	7.7					
08-Jul-08	551		430	110		0.2	0	7.9					
09-Jul-08	547		650	150		0	0	7.6					
10-Jul-08	565	37	710	140		0	1	7.7					
11-Jul-08	509		10	180		0	1	7.8					
12-Jul-08	411		40	190		0	4	7.7					
13-Jul-08	537		10	160		0	0	7.7					
14-Jul-08	458		530	130		0	1	7.5					
15-Jul-08	531		820	150		3.6	0	7.5					
16-Jul-08	535		780	130		2	2	7.6					
17-Jul-08	614	52	480	100		5	0	7.6					
18-Jul-08	515		480	110		6	0	7.3					
19-Jul-08	417		520	110		6	0	7.4					
20-Jul-08	411		620	70		4	1	7.9					
21-Jul-08	475		780	90		14	0	7.4					
22-Jul-08	527		410	80		13.2	0	7.4					
23-Jul-08	505		1480	100		12	2	7.4					
24-Jul-08	329		1370	120	25.9	12	0	7.6	0.28	0.35	226.00	<10	0.03
25-Jul-08	467	135	1190	100		13	4	7.5					
26-Jul-08	502		940	120		18	2	7.7					
27-Jul-08	380		110	50		0	3	7.2					
28-Jul-08	430		1260	170		8	1	7.8					
29-Jul-08	527		630	90		9.1	0	7.8					
30-Jul-08	601	34	770	100		9	1	7.8					
31-Jul-08	592		700	150		9	1	7.7					
Average	503	60	689	141	26	5	1	7.61	0.275	0.35	226	<10	0.027
Maximum	614	135	1480	360	25.9	18.1	3.5	7.91	0.275	0.35	226	<10	0.027
Minimum	329	34	10	50		0	0	7.16	0.275	0.35	226	<10	0.027
No. of non-Compliances	0	0	0	0	0	0	0	0	0	0	0	0	0
% Compliance Monthly	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% Compliance year to date	85.70%	100%	85.70%	85.70%	85.70%	85.70%	100%	100%	100%	100%	85.70%	85.70%	100%

Technical Specialist

A. A. A.

Environmental, Health and Safety Manager

P. B. H.

ANNUAL ENVIRONMENTAL REPORT 2008

Report: Emissions to Sewer Monitoring
Period: Aug-08
Company: Pfizer Loughbeg
Address: Loughbeg, Co.Cork
Telephone: 021-4378788
Licence No.: P0010-04
Sample Type: DAILY COMPOSITE

DATE	FLOW m ³ Daily	BOD mg/l Weekly	COD mg/l Daily	S.S. mg/l Daily	TOTAL N (as N) mg/l Monthly	NH3 (as N) mg/l Daily	TOTAL P (as P) mg/l Daily	pH	ZINC mg/l Monthly	TOTAL HEAVY METALS mg/l Monthly	SULPHATES mg/l Annually	FATS,OILS GREASES mg/l Monthly	DETERGENTS mg/l Annually
Licence limit	1800	2000	3000	250	100	50	200	6-9	1				
01-Aug-08	461		2680	220		5	0	7.7					
02-Aug-08	459		1000	260		4	0	7.7					
03-Aug-08	439		240	240		3	0	7.6					
04-Aug-08	374		100	100		1	1	7.8					
05-Aug-08	448		650	120		0.5	0.5	7.7					
06-Aug-08	544	60	830	120		2	0	7.5					
07-Aug-08	564		620	210		2	0	8.0					
08-Aug-08	625		850	160		0	2	7.9					
09-Aug-08	625		570	150		0	0	7.8					
10-Aug-08	583		490	90		0	0	7.8					
11-Aug-08	600		470	80		0	0	7.7					
12-Aug-08	522		970	150		0	0.5	8.0					
13-Aug-08	482	53	500	180		0	2	7.9					
14-Aug-08	539		470	220		0	0	8.0					
15-Aug-08	625		630	300		0	2	7.9					
16-Aug-08	453		430	280		0	1	8.1					
17-Aug-08	459		620	240		0	5	8.0					
18-Aug-08	603		710	80		0	2	7.7					
19-Aug-08	450		800	120		0	0	7.7					
20-Aug-08	435	60	420	130		0	1	7.8					
21-Aug-08	451		600	120		0	0	7.7					
22-Aug-08	602		460	90		0	1	7.7					
23-Aug-08	659		140	110		0	0	7.6					
24-Aug-08	565		340	60		0	3	7.6					
25-Aug-08	474		310	60		0	1	7.6					
26-Aug-08	488		490	50	5.04	0	0	7.6	0.04	0.14	297.00	<10	0.03
27-Aug-08	467	86	830	40		1	1	7.6					
28-Aug-08	540		470	160		0	3	7.6					
29-Aug-08	584		100	160		0	4	7.7					
30-Aug-08	578		310	90		0	4	7.7					
31-Aug-08	550		470	80		0	3	7.7					
Average	524	65	599	144	5	1	1	8	0.039	0.14	297	<10	0.03
Maximum	659	86	2680	300	5.04	4.8	5	8.06	0.039	0.14	297	<10	0.03
Minimum	374	53	100	40		0	0	7.52					
No. of non-Compliances	0	0	0	0	0	0	0	0	0	0	0	0	0
% Compliance Monthly	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%
% Compliance year to date	87.50%	100%	87.50%	87.50%	87.50%	87.50%	100%	100%	100%	100%	87.50%	87.50%	100%

Technical Specialist

A. Asha

Environmental, Health and Safety Manager

P.S. P.S.

ANNUAL ENVIRONMENTAL REPORT 2008

Report: Emissions to Sewer Monitoring
 Period: Sep-08
 Company: Pfizer Loughbeg
 Address: Loughbeg, Co.Cork
 Telephone: 021-4378788
 Licence No.: P0010-04
 Sample Type: DAILY COMPOSITE

DATE	FLOW m ³ Daily	BOD mg/l Weekly	COD mg/l Daily	S.S mg/l Daily	TOTAL N (as N) mg/l Monthly	NH3 (as N) mg/l Daily	TOTAL P (as P) mg/l Daily	pH	ZINC mg/l Monthly	TOTAL HEAVY METALS mg/l Monthly	SULPHATES mg/l Annually	FATS,OILS GREASES mg/l Monthly	DETERGENTS mg/l Annually
Licence limit	1800	2000	3000	250	100	50	200	6.9	1	1	700	10	5
Licence freq.	Daily	Weekly	Daily	Daily	Monthly	Daily	Daily	Daily	Monthly	Monthly	Annually	Monthly	Annually
01-Sep-08	534		700	120		0	0	7.8					
02-Sep-08	559		670	130		0	0	7.8					
03-Sep-08	544	34	320	70		0	2	7.6					
04-Sep-08	539		660	80		0	1	7.9					
05-Sep-08	543		550	90		0.2	0	7.9					
06-Sep-08	451		660	150		1	3	7.9					
07-Sep-08	417		500	180		1	4	8.0					
08-Sep-08	584		420	240		1	3	8.0					
09-Sep-08	1119		450	20		0.4	13	8.0					
10-Sep-08	868		0	120		1	0	7.9					
11-Sep-08	4.76	89	530	60		3	0	8.3					
12-Sep-08	432		540	50		1	0	7.8					
13-Sep-08	444		420	100		0	0	7.8					
14-Sep-08	378		650	50		0	4	7.9					
15-Sep-08	418		590	100		0	0	7.8					
16-Sep-08	481	126	700	140		0.5	0	7.9					
17-Sep-08	467		670	110		0	3	7.7					
18-Sep-08	376		600	110		0	6	7.7					
19-Sep-08	373		480	70		0	1	7.7					
20-Sep-08	387		680	80		0	2	7.8					
21-Sep-08	405		610	80		0	1	7.7					
22-Sep-08	457		600	90		0	0	7.8					
23-Sep-08	527		590	10		0	1	7.9					
24-Sep-08	646	80	690	10		0	3	7.8					
25-Sep-08	645		836	30		0	2	7.2					
26-Sep-08	237		240	10		0	4	7.3					
27-Sep-08	369		630	20		0	2	7.1					
28-Sep-08	440		520	20		0	2	7.1					
29-Sep-08	477		570	90		5	3	7.7					
30-Sep-08	465		180	10	13.1	4.8	2	7.8	0	0	221	<10	0
Average	486	82	542	61	13	1	2	8	0.111	0.17	221	<10	0.17
Maximum	1119	126	836	240	13.1	4.8	13	8.31	0.111	0.17	221	<10	0.17
Minimum	4.76	34	0	10	13.1	0	0	7.09	0.111	0.17	221	<10	0.17
No. of non-Compliances	0	0	0	0	0	0	0	0	0	0	0	0	0
% Compliance Monthly	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% Compliance year to date	88.88%	100%	88.88%	88.88%	88.88%	88.88%	100%	100%	100%	100%	88.88%	88.88%	100%

Technical Specialist

A. A. A.

Environmental, Health and Safety Manager

P. P. P.

ANNUAL ENVIRONMENTAL REPORT 2008

Report: Emissions to Sewer Monitoring
 Period: Oct-08
 Company: Pfizer Loughbeg
 Address: Loughbeg, Co.Cork
 Telephone: 021-4376788
 Licence No.: P0010-04
 Sample Type: DAILY COMPOSITE

DATE	FLOW m ³ Daily	BOD mg/l Weekly	COD mg/l Daily	S.S mg/l Daily	TOTAL N (as N) mg/l Monthly	NH3 (as N) mg/l Daily	TOTAL P (as P) mg/l Daily	pH	ZINC mg/l Monthly	TOTAL HEAVY METALS mg/l Monthly	SULPHATES mg/l Annually	FATS,OILS GREASES mg/l Monthly	DETERGENTS mg/l Annually
Licence limit	1800	2000	3000	250	100	50	200	6-9	1	1	700	10	5
01-Oct-08	477	75	110	8		2	1	7.8					
02-Oct-08	465		626	27.5		6	0	7.7					
03-Oct-08	482		605	4		0.51	0.5	7.8					
04-Oct-08	486		619	10.5		0	0	7.7					
05-Oct-08	526		587	8		0	1	7.6					
06-Oct-08	491		733	35.5		0	1	7.7					
07-Oct-08	494		615	26.5		0	0	8.2					
08-Oct-08	554	101	634	22		0	0	7.8					
09-Oct-08	599		614	36.5		0	0.45	7.8					
10-Oct-08	491		696	42		0.08	0	7.8					
11-Oct-08	459		606	38.5		0	1	7.6					
12-Oct-08	531		614	31		0	0	7.8					
13-Oct-08	563		850	59.5		0	0	8.0					
14-Oct-08	492		585	22.5		0	1	7.9					
15-Oct-08	480	83	648	23		0	0	7.9					
16-Oct-08	604		551	36		0	1	7.9					
17-Oct-08	488		663	23.5		0.07	0.55	7.8					
18-Oct-08	519		653	41		0	1	7.8					
19-Oct-08	609		605	34		0	1	7.8					
20-Oct-08	546		676	45		0	1	7.8					
21-Oct-08	454		615	33	5.1	0	1	7.6					
22-Oct-08	494	102	597	24		0	0	7.9	0.21	0.34	258	<10	0.07
23-Oct-08	594		577	23.5		0	0	7.9					
24-Oct-08	486		876	37.5		0.09	0.51	7.6					
25-Oct-08	497		700	32		0	0	7.6					
26-Oct-08	484		710	49.5		0	1	7.6					
27-Oct-08	569		619	19.5		0	1	7.6					
28-Oct-08	485	99	727	20		0	0	7.7					
29-Oct-08	464		898	18		0	0	7.9					
30-Oct-08	405		1026	26		0	0	7.6					
31-Oct-08	439		972	12.5		0	0	7.8					
Average	507	92	665	28	5	0	1	8	0.206	0.34	258	<10	0.07
Maximum	609	102	1026	59.5	5.1	5.85	1.16	8.15	0.206	0.34	258	<10	0.07
Minimum	405	75	110	4		0	0.08	7.56	0.206	0.34	258	<10	0.07
No. of non-Compliances	0	0	0	0	0	0	0	0	0	0	0	0	0
% Compliance Monthly	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% Compliance year to date	90%	100%	90%	90%	90%	90%	100%	100%	100%	100%	90%	90%	100%

Technical Specialist

A. Adair

Environmental, Health and Safety Manager

P. B. H.

ANNUAL ENVIRONMENTAL REPORT 2008

Report: Emissions to Sewer Monitoring
Period: Nov-08
Company: Pfizer Loughbeg
Address: Loughbeg, Co.Cork
Telephone: 021-4378766
Licence No.: P0010-04
Sample Type: DAILY COMPOSITE

DATE	FLOW m³	BOD mg/l	COD mg/l	S.S mg/l	TOTAL N (as N) mg/l	NH3 (as N) mg/l	TOTAL P (as P) mg/l	pH	ZINC mg/l	TOTAL HEAVY METALS mg/l	SULPHATES mg/l	FATS,OILS GREASES mg/l	DETERGENTS mg/l
Licence limit	1800	2000	3000	250	100	50	200	6-9	1	1	700	10	5
Licence freq	Daily	Weekly	Daily	Daily	Monthly	Daily	Daily	Daily	Monthly	Monthly	Annually	Monthly	Annually
01-Nov-08	500		862	12		0	0	7.8					
02-Nov-08	410		786	20.5		0	0	7.8					
03-Nov-08	484		861	22		0.02	0.11	8.0					
04-Nov-08	499	99	843	18.5		0	0	8.1					
05-Nov-08	451		793	36.5		0	0	8.0					
06-Nov-08	499		722	31		0	0	8.1					
07-Nov-08	466		649	28.5		0	0	8.1					
08-Nov-08	434		631	24		0	0	8.2					
09-Nov-08	438		679	21		0	0.24	8.2					
10-Nov-08	382		785	22		0.02	0	8.2					
11-Nov-08	448		832	16.5		0	0	8.1					
12-Nov-08	499	94	826	18.5		0	0	8.8					
13-Nov-08	440		976	29		0	1	8.3					
14-Nov-08	495		852	20.5		0	0	7.8					
15-Nov-08	362		791	26		0	0	8.0					
16-Nov-08	344		772	25.5		0	0	8.1					
17-Nov-08	349		649	25		0.04	0.17	8.2					
18-Nov-08	383		734	33		0	0	7.8					
19-Nov-08	362	66	660	29.5	3.6	0	0	8.2	0	0	120	<10	0
20-Nov-08	332		619	19		0	0	8.2					
21-Nov-08	362		631	16.5		0	0	8.2					
22-Nov-08	289		593	17		0	0	8.1					
23-Nov-08	271		473	14		0	0	8.3					
24-Nov-08	228		418	15.5		0.03	0.23	8.4					
25-Nov-08	323		490	20		0	0	7.7					
26-Nov-08	368		100	50		0	1	7.8					
27-Nov-08	345		427	15.5		0	0	8.2					
28-Nov-08	327	92	460	14		0	0	8.0					
29-Nov-08	259		474	15		0	0	7.9					
30-Nov-08	274		488	22		0	1	7.8					
Average	387	88	663	22	4	0	0	8	0.058	0.2	120	<10	0.09
Maximum	500	99	976	50	3.6	0.22	0.68	8.8	0.058	0.2	120	<10	0.09
Minimum	228	66	100	12	3.6	0	0.09	7.68	0.058	0.2	120	<10	0.09
No. of non-compliances	0	0	0	0	0	0	0	0	0	0	0	0	0
% Compliance Monthly	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% Compliance year to date	90.90%	100%	90.90%	90.90%	90.90%	90.90%	100%	100%	100%	100%	90.90%	90.90%	100%

Technical Specialist

A. Ado

Environmental, Health and Safety Manager

P. B. K.

ANNUAL ENVIRONMENTAL REPORT 2008

Report: Emissions to Sewer Monitoring
Period: Dec-08
Company: Pfizer Loughbeg

Address: Loughbeg, Co.Cork
Telephone: 021-4378788

Licence No.: P0010-04

Sample Type: DAILY COMPOSITE

DATE	FLOW m³	BOD mg/l	COD mg/l	S.S mg/l	TOTAL N (as N) mg/l	NH3 (as N) mg/l	TOTAL P (as P) mg/l	pH	ZINC mg/l	TOTAL HEAVY METALS mg/l	SULPHATES mg/l	FATS,OILS GREASES mg/l	DETERGENTS mg/l
Licence limit	1800	2000	3000	250	100	50	200	6-9	1	1	700	10	5
Licence freq.	Daily	Weekly	Daily	Daily	Monthly	Daily	Daily	Daily	Monthly	Monthly	Annually	Monthly	Annually
01-Dec-08	259		442	13		0	1	7.6					
02-Dec-08	274		451	13.5		0	2	7.7					
03-Dec-08	256	76	446	23		0	2.6	7.7					
04-Dec-08	356		440	14		0	1	7.5					
05-Dec-08	377		341	11		0	1	8.5					
06-Dec-08	380		371	10.5		0	0	8.0					
07-Dec-08	346		401	6		0	0	7.9					
08-Dec-08	296		283	15		0	0	8.0					
09-Dec-08	239	68	450	24		0	0.22	7.3					
10-Dec-08	311		403	16		0.01	0	7.6					
11-Dec-08	288		393	20.5		0	0	7.3					
12-Dec-08	394		445	15		0	0	7.0					
13-Dec-08	387		314	14		0	0	7.8					
14-Dec-08	339		386	16		0	1	7.5					
15-Dec-08	307		268	25		1	1	7.7					
16-Dec-08	279	116	302	21	3.1	0	1	7.3	1	0	160	<10	0
17-Dec-08	279		271	15		0.03	0.75	7.4					
18-Dec-08	372		312	16.5		0	1	7.3					
19-Dec-08	358		315	18		0	0	7.6					
20-Dec-08	363		324	23.5		0	0	7.4					
21-Dec-08	312		299	22.5		0	0	7.2					
22-Dec-08	328		249	25		2	0	7.3					
23-Dec-08	334		240	20		0	0	7.3					
24-Dec-08	316	110	110	80		0	0.1	7.1					
25-Dec-08	309		465	10		0	0	7.2					
26-Dec-08	295		261	84.5		0	1	7.3					
27-Dec-08	262		136	7.5		0	0	7.3					
28-Dec-08	320		154	19.5		0	0	7.2					
29-Dec-08	249		298	54		0	1	7.1					
30-Dec-08	211		225	13.5		2	0	7.1					
31-Dec-08	258		365	9.5		1	0	7.2					
Average	311	93	328	22	3	1	1	7	0.81	0.22	160	<10	0.04
Maximum	394	116	465	84.5	3.1	1.86	2.6	8.49	0.81	0.22	160	<10	0.04
Minimum	211	68	110	6	3.1	0	0.1	7	0.81	0.22	160	<10	0.04
No. of non-Compliances	0	0	0	0	0	0	0	0	0	0	0	0	0
% Compliance Monthly	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% Compliance year to date	91.66%	100%	91.66%	91.66%	91.66%	91.66%	100%	100%	100%	100%	91.66%	91.66%	100%

Technical Specialist

A. Ashe

Environmental, Health and Safety Manager

P. Butler

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: EMISSIONS TO SEWER MONITORING.

PERIOD: Jan-08

COMPANY: PFIZER LOUGHBEG.

ADDRESS: LOUGHBEG, Co.CORK.

TELEPHONE: 021-4378788

LICENCE No: P0010-04

MONTH	Jan-08
PARAMETER	mg/l
Methanol	<1
Acetic acid	<5
Ethyl acetate	<1
Triethylamine	<5
Acetone	<1
IPA	<1
Hexane	<1
MTBE	18.3
Ethanol	<1
THF	<1
US EPA 524.2:VOC's	ug/l
Dichloromethane	<1000
Toluene	<1000

Technical Specialist A. Ashe

Environment, Health & Safety Manager B. O'Leary

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: EMISSIONS TO SEWER MONITORING.

PERIOD: Feb-08

COMPANY: PFIZER LOUGHBEG.

ADDRESS: LOUGHBEG, Co.CORK.

TELEPHONE: 021-4378788

LICENCE No: P0010-04

MONTH	Feb-08
PARAMETER	mg/l
Methanol	<1.0
Ethanol	<0.001
Acetic acid	<5.0
Ethyl acetate	<1
Triethylamine	<5
Acetone	17
IPA	<1
Hexane	<1
MTBE	157
THF	9.8
US EPA 524.2:VOC's	ug/l
Methylene Chloride	<1000
Toluene	<1000

Technical Specialist A. Ashe

Environment, Health & Safety Manager P. Butler

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: EMISSIONS TO SEWER MONITORING.

PERIOD: Mar-08

COMPANY: PFIZER LOUGHBEG.

ADDRESS: LOUGHBEG, Co.CORK.

TELEPHONE: 021-4378788

LICENCE No: P0010-04

MONTH	Mar-08
PARAMETER	mg/l
Methanol	<1
Ethanol	<0.001
Acetic acid	<5
Ethyl acetate	<1
Triethylamine	<10
Acetone	1.1
IPA	<0.001
Hexane	<1
MTBE	76.2
THF	42.9
US EPA 524.2:VOC's	ug/l
Methylene Chloride	<1
Toluene	<1

Technical Specialist A. Ashe

Environment, Health & Safety Manager [Signature]

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: EMISSIONS TO SEWER MONITORING.

PERIOD: Apr-08

COMPANY: PFIZER LOUGHBEG.

ADDRESS: LOUGHBEG, Co.CORK.

TELEPHONE: 021-4378788

LICENCE No: P0010-04

MONTH	Apr-08
PARAMETER	mg/l
Methanol	<1
Ethanol	<1
Acetic acid	<5
Ethyl acetate	<1
Triethylamine	<5
Acetone	<1
IPA	<1
Hexane	<1
MTBE	<1
THF	<1
US EPA 524.2:VOC's	ug/l
Methylene Chloride	<1000
Toluene	<1000

Technical Specialist A. Ashe

Environment, Health & Safety Manager P. Butler

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: EMISSIONS TO SEWER MONITORING.

PERIOD: May-08

COMPANY: PFIZER LOUGHBEG.

ADDRESS: LOUGHBEG, Co.CORK.

TELEPHONE: 021-4378788

LICENCE No: P0010-04

MONTH	May-08
PARAMETER	mg/l
Methanol	<1
Ethanol	<1
Acetic acid	<5
Ethyl acetate	<1
Triethylamine	<5
Acetone	10.4
IPA	<1
Hexane	<1
MTBE	2
THF	<1
US EPA 524.2:VOC's	ug/l
Methylene Chloride	<1000
Toluene	<1000

Technical Specialist

A. Ashe

Environment, Health & Safety Manager

B. Butler

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: EMISSIONS TO SEWER MONITORING.

PERIOD: Jun-08

COMPANY: PFIZER LOUGHBEG.

ADDRESS: LOUGHBEG, Co.CORK.

TELEPHONE: 021-4378788

LICENCE No: P0010-04

MONTH	Jun-08
PARAMETER	mg/l
Methanol	<1
Ethanol	<1
Acetic acid	11.8
Ethyl acetate	<1
Triethylamine	<5
Acetone	2.8
IPA	<1
Hexane	<1
MTBE	65
THF	<1
US EPA 524.2:VOC's	ug/l
Methylene Chloride	<1000
Toluene	<1000

Technical Specialist A. Ashe

Environment, Health & Safety Manager P. Butler

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: EMISSIONS TO SEWER MONITORING.

PERIOD: Jul-08

COMPANY: PFIZER LOUGHBEG.

ADDRESS: LOUGHBEG, Co.CORK.

TELEPHONE: 021-4378788

LICENCE No: P0010-04

MONTH	Jul-08
PARAMETER	mg/l
Methanol	<1
Ethanol	<1
Acetic acid	28.8
Ethyl acetate	<1
Triethylamine	<5
Acetone	<1
IPA	<1
Hexane	<1
MTBE	17.3
THF	<1
US EPA 524.2:VOC's	ug/l
Methylene Chloride	<1000
Toluene	<1000

Technical Specialist

A. Asle

Environment, Health & Safety Manager

P. Buttle

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: EMISSIONS TO SEWER MONITORING.

PERIOD: Aug-08

COMPANY: PFIZER LOUGHBEG.

ADDRESS: LOUGHBEG, Co.CORK.

TELEPHONE: 021-4378788

LICENCE No: P0010-04

MONTH	Aug-08
PARAMETER	mg/l
Methanol	*
Ethanol	*
Acetic acid	*
Ethyl acetate	*
Triethylamine	*
Acetone	*
IPA	*
Hexane	*
MTBE	93
THF	*
US EPA 524.2:VOC's	ug/l
Methylene Chloride	<2
Toluene	<2

Technical Specialist A. Ashe

Environment, Health & Safety Manager B. Butler

* misunderstanding with analysis required by contracted laboratory

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: EMISSIONS TO SEWER MONITORING.

PERIOD: Sep-08

COMPANY: PFIZER LOUGHBEG.

ADDRESS: LOUGHBEG, Co.CORK.

TELEPHONE: 021-4378788

LICENCE No: P0010-04

MONTH	Sep-08
PARAMETER	mg/l
Methanol	*
Ethanol	*
Acetic acid	*
Ethyl acetate	*
Triethylamine	*
Acetone	*
IPA	*
Hexane	*
MTBE	*
THF	*
US EPA 524.2:VOC's	ug/l
Methylene Chloride	<1
Toluene	<1

Technical Specialist A. Ashe

Environment, Health & Safety Manager P Butler

* misunderstanding with analysis required by contracted laboratory

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: EMISSIONS TO SEWER MONITORING.

PERIOD: Oct-08

COMPANY: PFIZER LOUGHBEG.

ADDRESS: LOUGHBEG, Co.CORK.

TELEPHONE: 021-4378788

LICENCE No: P0010-04

MONTH	Oct-08
PARAMETER	mg/l
Methanol	15
Ethanol	<1
Acetic acid	<10
Ethyl acetate	<1
Triethylamine	<5
Acetone	<1
IPA	<1
Hexane	<1
MTBE	40
THF	37
US EPA 524.2:VOC's	ug/l
Methylene Chloride	<1000
Toluene	<1000

Technical Specialist

A. Ashe

Environment, Health & Safety Manager

P. Butler

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: EMISSIONS TO SEWER MONITORING.

PERIOD: Nov-08

COMPANY: PFIZER LOUGHBEG.

ADDRESS: LOUGHBEG, Co.CORK.

TELEPHONE: 021-4378788

LICENCE No: P0010-04

MONTH	Nov-08
PARAMETER	mg/l
Methanol	79
Ethanol	<1
Acetic acid	<5
Ethyl acetate	<1
Triethylamine	<5
Acetone	1.4
IPA	<1
Hexane	<1
MTBE	100
THF	74
US EPA 524.2:VOC's	ug/l
Methylene Chloride	<1000
Toluene	<1000

Technical Specialist

A. Ashe

Environment, Health & Safety Manager

B. After

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: EMISSIONS TO SEWER MONITORING.

PERIOD: Dec-08

COMPANY: PFIZER LOUGHBEG.

ADDRESS: LOUGHBEG, Co.CORK.

TELEPHONE: 021-4378788

LICENCE No: P0010-04

MONTH	Dec-08
PARAMETER	mg/l
Methanol	<1
Ethanol	<1
Acetic acid	<10
Ethyl acetate	<1
Triethylamine	<5
Acetone	<1
IPA	<1
Hexane	<1
MTBE	65
THF	<1
US EPA 524.2:VOC's	ug/l
Methylene Chloride	<1000
Toluene	<1000

Technical Specialist

A. Ashe

Environment, Health & Safety Manager

P. Butler

ANNUAL ENVIRONMENTAL REPORT 2008

Surface Water Discharge Monitoring Report

Period: Jan 08 to Mar 08
 Licence register No: P0010-04
 Licensee: Pfizer.
 Location: Loughbeg, Co. Cork.

Date	pH			Visual Inspection			COD(mg/l)	TOC(mg/l)	
	SW3	SW4	SW5	SW3	SW4	SW5	SW4	SW3	SW5
04/01/08	6.79	6.11	5.37	Colourless & Odourless	light brown & odourless	Colourless & Odourless	20	2	3
11/01/08	7.05	6.9	7.15	Colourless & Odourless	light brown & odourless	Colourless & Odourless	19	2	1
18/01/08	6.8	7	7.15	Colourless & Odourless	light brown & odourless	Colourless & Odourless	10	1	2
25/01/08	7.31	7	6.8	Colourless & Odourless	Area dry	No Discharge	10	1	3
01/02/08	Area dry	7.11	6.9	No discharge	light brown & odourless	No Discharge	3	0	0
08/02/08	6.97	7.01	6.85	Colourless & Odourless	Colourless & Odourless	light brown & odourless	5	3	2
15/02/08	7.37	6.71	7.01	No discharge	light brown & odourless	No discharge	3	1	0
22/02/08	6.62	7.71	7.7	light brown & odourless	Colourless & Odourless	Colourless & Odourless	1	2	4
29/02/08	7.08	7.23	7.6	No discharge	odourless & colourless	light brown & odourless	2	4	3
07/03/08	7.11	6.97	7.5	No discharge	odourless & colourless	light brown & odourless	2	3	5
14/03/08	No discharge	6.7	7.70	No discharge	light brown & odourless	odourless & colourless	2	0	3
20/03/08	5.6	7.2	7.9	No discharge	odourless & colourless	odourless & colourless	2	0	1
28/03/08	6.64	7.1	7.6	No discharge	odourless & colourless	light brown & odourless	0	1	1

Technical Specialist: A. Ashe

Environment, Health & Safety Manager: [Signature]

**Note: In accordance with condition 3.9.2 of the licence the discharge was diverted to the respective fire pond.

ANNUAL ENVIRONMENTAL REPORT 2008

Surface Water Discharge Monitoring Report

Period: Apr 08 to June 08
 Licence register No: P0010-04
 Licensee: Pfizer.
 Location: Loughbeg, Co. Cork.

Date	pH			Visual Inspection			COD(mg/l)		TOC(mg/l)	
	SW3	SW4	SW5	SW3	SW4	SW5	SW4	SW3	SW5	
04/04/08	6.45	7.7	7.30	No discharge	No discharge	Colourless & Odourless	No discharge	0		1
11/04/08	7.50	7.7	7.05	No discharge	No discharge	Colourless & Odourless	No discharge	0		2
18/04/08	6.21	7.4	7.3	No discharge	No discharge	Colourless & Odourless	No discharge	0		3
25/04/08	7.13	7.3	7.2	No discharge	No discharge	Colourless & Odourless	No discharge	0		3
02/05/08	7.63	7.51	7.2	No discharge	No discharge	Colourless & Odourless	No discharge	0		2
09/05/08	6.52	7.01	7.4	No discharge	No discharge	Colourless & Odourless	No discharge	0		1
16/05/08	7.50	7.4	7.5	No discharge	No discharge	Colourless & Odourless	No discharge	0		0
22/05/08	7.2	7.13	7.5	No discharge	No discharge	Colourless & Odourless	No discharge	0		0
30/05/08	7.04	7.01	7.6	No discharge	No discharge	Colourless & Odourless	No discharge	0		0
06/06/08	7.36	7.43	7.6	No discharge	No discharge	Colourless & Odourless	No discharge	0		0
13/06/08	5.28**	7.33	7.70	No discharge	No discharge	Colourless & Odourless	No discharge	1		0
19/06/08	6.55	7.02	7.7	No discharge	No discharge	Colourless & Odourless	No discharge	0		1
27/06/08	6.75	7.21	7.4	No discharge	No discharge	Colourless & Odourless	No discharge	0		0

Technical Specialist

A. Ashe

Environment, Health & Safety Manager:

PS/K

**Note: In accordance with condition 3.9.2 of the licence the discharge was diverted to the respective fire pond.

ANNUAL ENVIRONMENTAL REPORT 2008

Surface Water Discharge Monitoring Report

Period: July 08-Sept 08
 Licence register No: P0010-04
 Licensee: Pfizer.
 Location: Loughbeg, Co. Cork.

Date	pH			Visual Inspection			COD(mg/l)		TOC(mg/l)	
	SW3	SW4	SW5	SW3	SW4	SW5	SW4	SW3	SW5	
03/07/08	6.90	7.03	7.80	Odourless & Colourless	No discharge	Odourless & Colourless	No discharge	0		0
10/07/08	7.00	6.98	7.80	Odourless & Colourless	No discharge	Odourless & Colourless	No discharge	0		0
18/07/08	5.70	6.98	7.90	No discharge	No discharge	Odourless & Colourless	No discharge	1		0
25/07/08	6.50	7.23	7.80	Odourless & Colourless	No discharge	Odourless & Colourless	No discharge	0		1
01/08/08	6.66	7.31	7.60	Odourless & Colourless	No discharge	Odourless & Colourless	No discharge	0		1
07/08/08	6.72	6.60	7.60	No discharge	No discharge	Odourless & Colourless	No discharge	0		1
15/08/08	6.56	6.81	7.90	Odourless & Colourless	No discharge	Odourless & Colourless	No discharge	0		1
20/08/08	6.00	7.03	7.30	Odourless & Colourless	No discharge	Odourless & Colourless	No discharge	1		1
28/08/08	5.3**	6.21	7.50	Odourless & Colourless	No discharge	Odourless & Colourless	No discharge	0		0
04/09/08	5.9**	Area dry	7.20	No discharge	No discharge	Odourless & Colourless	No discharge	0		1
12/09/08	6.00	Area dry	7.20	No discharge	No discharge	Odourless & Colourless	No discharge	0		1
17/09/08	6.24	Area dry	7.1	No discharge	No discharge	No discharge	N/A	1		0
25/09/08	6.26	Area dry	8.4	Clear	No discharge	Odourless & Colourless	N/A	1		1

Technical Specialist: A. Ashe

Environment, Health & Safety Manager: B. Butler

**Note: In accordance with condition 3.9.2 of the licence the discharge was diverted to the respective fire pond.

ANNUAL ENVIRONMENTAL REPORT 2008

Surface Water Discharge Monitoring Report

Period: Oct 08 to Dec 08
 Licence register No: P0010-04
 Licensee: Pfizer
 Location: Loughbeg, Co. Cork.

Date	pH			Visual Inspection			COD(mg/l)		TOC(mg/l)	
	SW3	SW4	SW5	SW3	SW4	SW5	SW4	SW3	SW5	
03/10/08	4.27**	No discharge	7.50	No discharge	No discharge	No discharge	No discharge	0	0	
08/10/08	6.30	No discharge	7.50	No discharge	No discharge	Colourless & Odourless	No discharge	0	0	
17/10/08	6.58	No discharge	7.50	No discharge	No discharge	Colourless & Odourless	No discharge	0	0	
24/10/08	6.29	No discharge	7.20	Colourless and Odourless	No discharge	Colourless & Odourless	No discharge	0	0	
30/10/08	6.52	No discharge	7.30	Colourless and Odourless	No discharge	Colourless & Odourless	No discharge	3	0	
07/11/08	6.55	No discharge	7.30	Colourless and Odourless	No discharge	Colourless & Odourless	No discharge	0	2	
11/11/08	N/A	7.77	N/A	N/A	Colourless and Odourless	N/A	13	N/A	N/A	
12/11/08	N/A	N/A	7.80	Colourless and Odourless	N/A	Colourless & Odourless	N/A	0	0	
19/11/08	6.29	N/A	7.60	Colourless and Odourless	N/A	Colourless & Odourless	N/A	0	0.95	
21/11/2008	5.66	No discharge	N/A	N/A	No discharge	N/A	No discharge	N/A	N/A	
25/11/2008	6.45	No discharge	7.60	Colourless and Odourless	No discharge	Colourless & Odourless	No discharge	3	12	
02/12/2008	N/A	No discharge	N/A	N/A	No discharge	N/A	No discharge	N/A	N/A	
03/12/2008	6.52	N/A	7.40	Colourless and Odourless	N/A	Colourless & Odourless	N/A	0	0	
09/12/2008	N/A	No discharge	N/A	N/A	No discharge	N/A	No discharge	N/A	N/A	
10/12/2008	6.79	N/A	7.00	Colourless and Odourless	N/A	Colourless & Odourless	N/A	1.04	0	
16/12/2008	N/A	7.49	N/A	N/A	Light yellow and odourless	N/A	21	N/A	N/A	
18/12/2008	6.80	N/A	7.00	Colourless and Odourless	N/A	Colourless & Odourless	N/A	0	0	
22/12/2008	N/A	7.21	N/A	N/A	Colourless and Odourless	N/A	1	N/A	N/A	
23/12/2008	6.62	N/A	7.20	Colourless and Odourless	N/A	Colourless & Odourless	N/A	0	0	
30/12/2008	6.30	N/A	7.00	Colourless and Odourless	N/A	Colourless & Odourless	N/A	0	0.91	

Technical Specialist

Environment, Health & Safety Manager

**Note: In accordance with condition 3.9.2 of the licence the discharge was diverted to the respective fire pond.

ANNUAL ENVIRONMENTAL REPORT 2008

NORTH FIRE POND

Surface Water Diversion Report

Report Start	01/01/2008
Report End	01/01/2009

Diversion No.	Start	End	Duration	Driver (TOC or pH)	Max (Min) Value during Diversion
1			N/A		
2	11/01/2008 15:00	11/01/2008 15:03	3	PH	6.20
3	22/01/2008 13:36	22/01/2008 14:40	64	PH	9.70
4	01/02/2008 16:48	01/02/2008 16:57	9	PH	6.10
5	06/03/2008 17:54	06/03/2008 17:58	4	PH	6.10
6	14/03/2008 14:29	14/03/2008 14:32	3	PH	6.20
7	04/04/2008 14:37	04/04/2008 14:39	2	PH	6.70
8	18/04/2008 12:08	18/04/2008 12:15	7	PH	9.10
9	25/05/2008 11:50	25/05/2008 11:51	1	PH	9.10
10	25/05/2008 12:44	25/05/2008 12:49	5	PH	10.20
11	25/05/2008 12:52	25/05/2008 14:21	89	PH	11.00
12	25/05/2008 14:24	25/05/2008 14:41	17	PH	9.90
13	25/05/2008 14:42	25/05/2008 14:44	2	PH	9.20
14	25/05/2008 14:48	25/05/2008 15:31	43	PH	10.00
15	25/05/2008 15:33	25/05/2008 15:35	2	PH	9.80
16	25/05/2008 15:36	25/05/2008 15:56	20	PH	10.00
17	25/05/2008 16:00	25/05/2008 19:24	204	PH	10.20
18	12/06/2008 11:23	12/06/2008 11:27	4	PH	6.10
19	24/06/2008 16:24	24/06/2008 17:00	36	PH	10.30
20	21/07/2008 16:44	21/07/2008 17:42	58	PH	12.80
21	21/07/2008	21/07/2008	56	PH	9.30

ANNUAL ENVIRONMENTAL REPORT 2008

	18:51	19:47			
22	21/07/2008 20:05	21/07/2008 21:00	55	PH	9.50
23	21/07/2008 23:51	22/07/2008 00:41	50	PH	9.50
24	07/08/2008 09:15	07/08/2008 14:29	314	PH	10.30
25	07/08/2008 14:38	07/08/2008 15:10	32	PH	9.20
26	07/08/2008 21:02	07/08/2008 21:23	21	PH	9.20
27	16/08/2008 17:40	16/08/2008 18:26	46	PH	6.10
28	23/08/2008 15:55	23/08/2008 16:14	19	PH	9.30
29	23/08/2008 17:16	23/08/2008 17:23	7	PH	9.10
30	19/09/2008 09:25	22/09/2008 13:12	4547	PH	11.00
31	24/09/2008 13:05	24/09/2008 16:56	231	PH	9.40
32	25/09/2008 01:51	25/09/2008 02:44	53	PH	9.10
33	25/09/2008 03:39	25/09/2008 04:29	50	PH	9.20
34	25/09/2008 14:21	25/09/2008 14:25	4	PH	6.20
35	28/09/2008 02:26	28/09/2008 05:10	164	PH	6.10
36	07/10/2008 11:16	07/10/2008 11:38	22	PH	6.10
37	10/10/2008 14:27	10/10/2008 14:34	7	PH	6.10
38	22/10/2008 13:25	23/10/2008 04:43	918	PH	6.10
39	23/10/2008 07:18	23/10/2008 07:37	19	PH	6.10
40	01/11/2008 18:21	01/11/2008 21:41	200	PH	6.10
41	09/11/2008 16:02	09/11/2008 16:52	50	PH	6.10
42	14/11/2008 14:36	14/11/2008 14:38	2	PH	6.10
43	05/12/2008 10:45	05/12/2008 11:28	43	PH	6.10
44	13/12/2008 11:34	13/12/2008 11:38	4	PH	7.00
45	13/12/2008 11:41	13/12/2008 12:09	28	PH	6.10

ANNUAL ENVIRONMENTAL REPORT 2008

South Fire Pond		
Surface Water Diversion Report		
Report Start	01/01/2008	
Report End	01/01/2009	

Diversion No.	Start	End	Duration	Driver (TOC or pH)	Max (Min) Value during Diversion
1	09/02/2008 13:18	09/02/2008 13:54	36	TOC	265.70
2	10/02/2008 13:30	10/02/2008 14:06	36	TOC	205.30
3	11/02/2008 13:42	11/02/2008 14:18	36	TOC	229.00
4	12/02/2008 13:55	12/02/2008 14:30	35	TOC	274.90
5	13/02/2008 14:07	13/02/2008 14:42	35	TOC	286.40
6	14/02/2008 14:19	14/02/2008 14:54	35	TOC	287.00
7	15/02/2008 14:30	15/02/2008 15:06	36	TOC	284.30
8	16/02/2008 14:43	16/02/2008 15:19	36	TOC	290.70
9	17/02/2008 14:55	17/02/2008 15:31	36	TOC	288.20
10	18/02/2008 15:07	18/02/2008 15:43	36	TOC	283.80
11	19/02/2008 15:19	19/02/2008 15:56	37	TOC	282.10
12	20/02/2008 15:32	20/02/2008 15:42	10	TOC	248.80
13	21/02/2008 15:44	21/02/2008 15:55	11	TOC	283.90
14	22/02/2008 15:57	22/02/2008 16:07	10	TOC	286.40
15	23/02/2008 16:10	23/02/2008 16:20	10	TOC	283.80
16	24/02/2008 16:22	24/02/2008 16:58	36	TOC	285.10
17	25/02/2008 16:34	25/02/2008 17:10	36	TOC	287.40
18	26/02/2008 16:46	26/02/2008 17:22	36	TOC	287.00
19	27/02/2008 16:59	27/02/2008 17:35	36	TOC	283.70
20	28/02/2008 17:11	28/02/2008 17:47	36	TOC	288.30

ANNUAL ENVIRONMENTAL REPORT 2008

21	29/02/2008 17:23	29/02/2008 18:22	59	TOC	287.80
22	01/03/2008 17:35	01/03/2008 18:58	83	TOC	285.70
23	02/03/2008 17:48	02/03/2008 20:48	180	TOC	287.00
24	21/03/2008 14:09	21/03/2008 14:10	1	TOC	170.20
25	06/04/2008 18:59	06/04/2008 19:19	20	TOC	166.40
26	07/04/2008 19:05	07/04/2008 19:29	24	TOC	224.80
27	08/04/2008 19:17	08/04/2008 19:26	9	TOC	177.50
28	09/04/2008 19:30	09/04/2008 19:31	1	TOC	128.00
29	10/04/2008 19:43	10/04/2008 19:46	3	TOC	142.60
30	11/04/2008 19:54	11/04/2008 19:56	2	TOC	133.50
31	30/04/2008 15:31	30/04/2008 16:19	48	TOC	287.50
32	15/11/2008 16:03	15/11/2008 16:05	2	TOC	250.80
33	31/01/2008 01:58	31/01/2008 03:50	112	PH	10.10
34	07/02/2008 11:17	07/02/2008 11:18	1	PH	9.80
35	08/02/2008 09:18	08/02/2008 10:25	67	PH	9.60
36	25/04/2008 14:52	26/04/2008 06:54	962	PH	12.20
37	26/04/2008 10:17	26/04/2008 10:38	21	PH	9.20
38	26/04/2008 12:34	26/04/2008 12:51	17	PH	9.60
39	27/04/2008 14:48	27/04/2008 15:31	43	PH	9.30
40	29/05/2008 12:05	29/05/2008 12:11	6	PH	10.00
41	18/06/2008 16:07	18/06/2008 16:13	6	PH	9.20
42	07/08/2008 11:23	07/08/2008 11:27	4	PH	11.10
43	09/08/2008 04:03	09/08/2008 04:14	11	PH	9.10

PFIZER LOUGHBEG DRUG PRODUCT (LODP) PLANT

Schedule B.1 ANNUAL AIR EMISSIONS SURVEY - SUMMARY

In compliance with the IPPC Licence (P-0010-04), ANV Technology carried out monitoring of the Pfizer LODP plant's operational vents over a 3-day period commencing Monday 26th January 2009.

The vents were monitored for air flow and particulate of the active ingredient, Atorvastatin Calcium.

The following emissions points were included in this exercise:

TAB-01, TAB-02, TAB-03, TAB-05, TAB-06, TAB-10, TAB-11, TAB-12, TAB-13, TAB-15, TAB-16, TAB-17, TAB-21, TAB-28, TAB-33, TAB-35, TAB-36, TAB-38.

TAB-04 was shutdown for preventative maintenance during the period of the survey.

All other emission vents which are specified in the licence are currently out of commission.

Monitoring was carried out when the relevant production processes were running. The assigned dust concentration emission limit value (as per the IPPC Licence) is 0.1 mg/m^3 . It is assumed that this refers to the content of active pharmaceutical ingredient (Atorvastatin Calcium). Samples were analysed initially for total particulates. Any samples which exceeded 0.1 mg/m^3 were further analysed for the active ingredient.

Particulates were detected in three samples only. The measured particulate emissions were in excess of 0.1 mg/m^3 from these three vents and ranged from 0.15 mg/m^3 to 1.2 mg/m^3 .

These samples were then further analysed for Atorvastatin Calcium (ATC). ATC was detected in only one of the samples, at 0.005 mg/m^3 . This is 0.5% of the emission limit value.

ANV Technology concluded that the emissions of particulate pharmaceutical ingredients are within the limit value of 0.1 mg/m^3 in all vents.

The air flows were also within the limits specified in the IPPC licence.

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: ATMOSPHERIC EMISSION MONITORING RESULTS

PERIOD: January-08

COMPANY : PFIZER LOUGHBEG

ADDRESS: LOUGHBEG, RINGASKIDDY, CO.CORK.

TELEPHONE: 021-4378788

LICENCE NO: P0010-04

SAMPLE TYPE: 30 MINS SAMPLE:

DATE OF SAMPLING: 16/01/2008

16/01/2008

16/01/2008

PARAMETER	FREQUENCY	LICENCE LIMIT (mg/Nm ³)	DR1-03		DR1-04		CB101		CB102		CB201	
			RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N
ORGANICS CLASS I MDC CEN 13649	monthly	20mg/Nm3	<1	Y	Not in Use		1.2	Y	2.1	Y	Not in Use	
ORGANICS CLASS II, III Acet.	monthly	100mg/Nm3	<0.2	Y			<0.2	Y	<0.2	Y		
Tol.			<0.2	Y			<0.2	Y	<0.2	Y		
MTBE			<0.2	Y			<0.2	Y	<0.2	Y		
MeOH			<0.2	Y			1.1	Y	<0.2	Y		
ETAC			<0.2	Y			<0.2	Y	<0.2	Y		
THF			<0.2	Y			<0.2	Y	<0.2	Y		
Acetonitrile			<0.2	Y			<0.2	Y	<0.2	Y		
IPA			<0.2	Y			<0.2	Y	<0.2	Y		
Hex. CEN 13649			<0.2	Y			<0.2	Y	<0.2	Y		
PARTICULATES CEN 13284	Annually	1.0mg/Nm3	<0.2	Y			N/A		N/A			
HYDROGEN CHLORIDE CEN 1911	Quarterly	CB1-01 10mg/m3 CB 1-02 20mg/Nm3	N/A				2.1	Y	0.16	Y		

TECHNICAL SPECIALIST



ENVIRONMENT, HEALTH & SAFETY MANAGER:

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: ATMOSPHERIC EMISSION MONITORING RESULTS

PERIOD: February-08

COMPANY : PFIZER LOUGHBEG

ADDRESS: LOUGHBEG, RINGASKIDDY, CO.CORK.
TELEPHONE: 021-4378788

LICENCE NO: P0010-04

SAMPLE TYPE: 30 MINS SAMPLE.

DATE OF SAMPLING: 29/02/2008

29/02/2008

29/02/2008

PARAMETER	FREQUENCY	LICENCE LIMIT (mg/Nm ³)	DR1-03		DR1-04		CB101		CB102		CB201	
			RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N
ORGANICS CLASS I MDC CEN 13649	monthly	20mg/Nm3	<0.06	Y	Not in Use		<0.06	Y	0.45	Y	Not in Use	
ORGANICS CLASS II, III Acet.	monthly	100mg/Nm3	<0.06	Y			<0.06	Y	<0.06	Y		
Tol.			0.11	Y			0.13	Y	0.08	Y		
MTBE			<0.06	Y			<0.06	Y	<0.06	Y		
MeOH			<0.06	Y			<0.06	Y	<0.06	Y		
ETAC			<0.06	Y			<0.06	Y	<0.06	Y		
THF			<0.06	Y			<0.06	Y	<0.06	Y		
Acetonitrile			<0.06	Y			<0.06	Y	<0.06	Y		
IPA			<0.06	Y			<0.06	Y	<0.06	Y		
Hex. CEN 13649			<0.06	Y			<0.06	Y	<0.06	Y		
PARTICULATES CEN 13284	Annually	1.0mg/Nm3	<0.13	Y			N/A		N/A			
HYDROGEN CHLORIDE CEN 1911	Quarterly	CB1-01 10mg/m3 CB 1-02 20mg/Nm3	N/A				0.56	Y	3.05	Y		

TECHNICAL SPECIALIST



ENVIRONMENT, HEALTH & SAFETY MANAGER: _____

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: ATMOSPHERIC EMISSION MONITORING RESULTS

PERIOD: March-08

COMPANY : PFIZER LOUGHBEG

ADDRESS: LOUGHBEG, RINGASKIDDY, CO.CORK.

TELEPHONE: 021-4378788

LICENCE NO: P0010-04

SAMPLE TYPE: 30 MINS SAMPLE.

DATE OF SAMPLING: 20/03/2008

20/03/2008

20/03/2008

PARAMETER	FREQUENCY	LICENCE LIMIT (mg/Nm ³)	DR1-03		DR1-04		CB101		CB102		CB201	
			RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N
ORGANICS CLASS I MDC CEN 13649	monthly	20mg/Nm3	<0.07	Y	Not in Use		<0.07	Y	<0.07	Y	Not in Use	
ORGANICS CLASS II, III Acet.	monthly	100mg/Nm3	<0.07	Y			<0.07	Y	<0.07	Y		
Tol.			<0.07	Y			<0.07	Y	<0.07	Y		
MTBE			<0.07	Y			<0.07	Y	<0.07	Y		
MeOH			<0.07	Y			<0.07	Y	<0.07	Y		
ETAC			<0.07	Y			<0.07	Y	<0.07	Y		
THF			<0.07	Y			<0.07	Y	<0.07	Y		
Acetonitrile			<0.07	Y			<0.07	Y	<0.07	Y		
IPA			<0.07	Y			<0.07	Y	<0.07	Y		
Hex. CEN 13649			<0.07	Y			<0.07	Y	<0.07	Y		
PARTICULATES CEN 13284	Annually	1.0mg/Nm3	<0.13	Y	Not in Use		N/A		N/A		Not in Use	
HYDROGEN CHLORIDE CEN 1911	Quarterly	CB1-01 10mg/m3 CB 1-02 20mg/Nm3	N/A				1.65	Y	1.26	Y		

TECHNICAL SPECIALIST



ENVIRONMENT, HEALTH & SAFETY MANAGER:

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: ATMOSPHERIC EMISSION MONITORING RESULTS

PERIOD: April-08

COMPANY: PFIZER LOUGHBEG

ADDRESS: LOUGHBEG, RINGASKIDDY, CO. CORK.
TELEPHONE: 021-4378788

LICENCE NO: P0010-04

SAMPLE TYPE: 30 MINS SAMPLE

DATE OF SAMPLING: 29/04/2008 29/04/2008 29/04/2008

PARAMETER	FREQUENCY	LICENCE LIMIT (mg/Nm ³)	DR1-03		DR1-04		CB101		CB102		CB201	
			RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N
ORGANICS CLASS I MDC CEN 13649	monthly	20mg/Nm3	<0.17	Y	Not in Use		<0.17	Y	<0.17	Y	Not in Use	
ORGANICS CLASS II, III	monthly	100mg/Nm3										
Acet.			<0.17	Y			<0.17	Y	<0.17	Y		
Tol.			<0.17	Y			<0.17	Y	<0.17	Y		
MTBE			<0.17	Y			<0.17	Y	<0.17	Y		
MeOH			<0.17	Y			<0.17	Y	<0.17	Y		
ETAC			<0.17	Y			<0.17	Y	<0.17	Y		
THF			<0.17	Y			<0.17	Y	<0.17	Y		
Acetonitrile			<0.17	Y			<0.17	Y	<0.17	Y		
IPA			<0.17	Y			<0.17	Y	<0.17	Y		
Hex.			<0.17	Y			<0.17	Y	<0.17	Y		
CEN 13649												
PARTICULATES CEN 13284	Annually	1.0mg/Nm3	<0.11	Y			N/A		N/A			
HYDROGEN CHLORIDE CEN 1911	Quarterly	CB1-01 10mg/m3 CB 1-02 20mg/Nm3	N/A				10.9	N	6.3	Y		

TECHNICAL SPECIALIST



ENVIRONMENT, HEALTH & SAFETY MANAGER: _____

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: ATMOSPHERIC EMISSION MONITORING RESULTS

PERIOD: May-08

COMPANY : PFIZER LOUGHBEG

ADDRESS: LOUGHBEG, RINGASKIDDY, CO CORK.

TELEPHONE: 021-4378788

LICENCE NO: P0010-04

SAMPLE TYPE: 30 MINS SAMPLE

DATE OF SAMPLING: 23/05/2008

23/05/2008

23/05/2008

PARAMETER	FREQUENCY	LICENCE LIMIT (mg/Nm ³)	DR1-03		DR1-04		CB101		CB102		CB201	
			RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N
ORGANICS CLASS I MDC CEN 13649	monthly	20mg/Nm3	<0.33	Y	Not in Use		<0.33	Y	<0.33	Y	Not in Use	
ORGANICS CLASS II, III Acet.	monthly	100mg/Nm3	<0.33	Y			<0.33	Y	<0.33	Y		
Tol.			<0.33	Y			<0.33	Y	0.42	Y		
MTBE			<0.33	Y			<0.33	Y	<0.33	Y		
MeOH			<0.33	Y			<0.33	Y	<0.33	Y		
ETAC			<0.33	Y			<0.33	Y	<0.33	Y		
THF			<0.33	Y			<0.33	Y	<0.33	Y		
Acetonitrile			<0.33	Y			<0.33	Y	<0.33	Y		
IPA			<0.33	Y			<0.33	Y	<0.33	Y		
Hex.			<0.33	Y			<0.33	Y	<0.33	Y		
CEN 13649			<0.33	Y			<0.33	Y	<0.33	Y		
PARTICULATES CEN 13284	Annually	1.0mg/Nm3	<0.13	Y			N/A		N/A			
HYDROGEN CHLORIDE CEN 1911	Quarterly	CB1-01 10mg/m3 CB 1-02 20mg/Nm3	N/A				0.19	Y	0.47	Y		

TECHNICAL SPECIALIST



ENVIRONMENT, HEALTH & SAFETY MANAGER: _____

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: ATMOSPHERIC EMISSION MONITORING RESULTS

PERIOD: June-08

COMPANY : PFIZER LOUGHBEG

ADDRESS: LOUGHBEG, RINGASKIDDY, CO.CORK.
TELEPHONE: 021-4378788

LICENCE NO: P0010-04

SAMPLE TYPE: 30 MINS SAMPLE.

DATE OF SAMPLING: 24/06/2008 24/06/2008 24/06/2008

PARAMETER	FREQUENCY	LICENCE LIMIT (mg/Nm ³)	DR1-03		DR1-04		CB101		CB102		CB201	
			RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N
ORGANICS CLASS I MDC CEN 13649	monthly	20mg/Nm3	<0.17	Y	Not in Use		<0.17	Y	<0.17	Y	Not in Use	
ORGANICS CLASS II, III Acet.	monthly	100mg/Nm3	<0.17	Y			<0.17	Y	<0.17	Y		
Tol.			<0.17	Y			<0.17	Y	<0.17	Y		
MTBE			<0.17	Y			<0.17	Y	<0.17	Y		
MeOH			<0.17	Y			<0.17	Y	<0.17	Y		
ETAC			<0.17	Y			<0.17	Y	<0.17	Y		
THF			<0.17	Y			<0.17	Y	<0.17	Y		
Acetonitrile			<0.17	Y			<0.17	Y	<0.17	Y		
IPA			<0.17	Y			<0.17	Y	<0.17	Y		
Hex. CEN 13649			<0.17	Y			<0.17	Y	<0.17	Y		
PARTICULATES CEN 13284	Annually	1.0mg/Nm3	<0.15	Y			N/A		N/A			
HYDROGEN CHLORIDE CEN 1911	Quarterly	CB1-01 10mg/m3 CB 1-02 20mg/Nm3	N/A				1.7	Y	5.1	Y		

TECHNICAL SPECIALIST



ENVIRONMENT, HEALTH & SAFETY MANAGER: _____

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: ATMOSPHERIC EMISSION MONITORING RESULTS

PERIOD: July-08

COMPANY: PFIZER LOUGHBEG

ADDRESS: LOUGHBEG, RINGASKIDDY, CO. CORK.
TELEPHONE: 021-4378788

LICENCE NO: P0010-04

SAMPLE TYPE: 30 MINS SAMPLE.

DATE OF SAMPLING: 17/07/2008

17/07/2008

17/07/2008

PARAMETER	FREQUENCY	LICENCE LIMIT (mg/Nm ³)	DR1-03		DR1-04		CB101		CB102		CB201	
			RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N
ORGANICS CLASS I MDC CEN 13649	monthly	20mg/Nm ³	<0.13	Y	Not in Use		<0.13	Y	<0.13	Y	Not in Use	
ORGANICS CLASS II, III Acet.	monthly	100mg/Nm ³	<0.13	Y			<0.13	Y	<0.13	Y		
Tol.			<0.13	Y			<0.13	Y	<0.13	Y		
MTBE			<0.13	Y			<0.13	Y	<0.13	Y		
MeOH			<0.13	Y			<0.13	Y	<0.13	Y		
ETAC			<0.13	Y			<0.13	Y	<0.13	Y		
THF			<0.13	Y			<0.13	Y	<0.13	Y		
Acetonitrile			<0.13	Y			<0.13	Y	<0.13	Y		
IPA			<0.13	Y			<0.13	Y	<0.13	Y		
Hex. CEN 13649			<0.13	Y			<0.13	Y	<0.13	Y		
PARTICULATES CEN 13284	annually	1.0mg/Nm ³	<0.17	Y			N/A		N/A			
HYDROGEN CHLORIDE CEN 1911	Quarterly	CB1-01 10mg/m ³ CB 1-02 20mg/Nm ³	N/A				3.2	Y	4.1	Y		

TECHNICAL SPECIALIST



ENVIRONMENT, HEALTH & SAFETY MANAGER:

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: ATMOSPHERIC EMISSION MONITORING RESULTS

PERIOD: August-08

COMPANY : PFIZER LOUGHBEG

ADDRESS: LOUGHBEG, RINGASKIDDY, CO.CORK.

TELEPHONE: 021-4378788

LICENCE NO: P0010-04

SAMPLE TYPE: 30 MINS SAMPLE.

DATE OF SAMPLING: 28/08/2008

28/08/2008

28/08/2008

PARAMETER	FREQUENCY	LICENCE LIMIT (mg/Nm ³)	DR1-03		DR1-04		CB101		CB102		CB201	
			RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N
ORGANICS CLASS I MDC CEN 13649	monthly	20mg/Nm3	<0.15	Y	Not in Use		<0.15	Y	<0.15	Y	Not in Use	
ORGANICS CLASS II, III Acet.	monthly	100mg/Nm3	<0.15	Y			<0.15	Y	<0.15	Y		
Tol.			<0.15	Y			<0.15	Y	<0.15	Y		
MTBE			<0.15	Y			<0.15	Y	<0.15	Y		
MeOH			<0.15	Y			<0.15	Y	<0.15	Y		
ETAC			<0.15	Y			<0.15	Y	<0.15	Y		
THF			<0.15	Y			<0.15	Y	<0.15	Y		
Acetonitrile			<0.15	Y			<0.15	Y	<0.15	Y		
IPA			<0.15	Y			<0.15	Y	<0.15	Y		
Hex.			<0.15	Y			<0.15	Y	<0.15	Y		
CEN 13649												
PARTICULATES CEN 13284	Annually	1.0mg/Nm3	<0.15	Y			N/A		N/A			
HYDROGEN CHLORIDE CEN 1911	Quarterly	CB1-01 10mg/m3 CB 1-02 20mg/Nm3	N/A				1.6	Y	2.1	Y		

TECHNICAL SPECIALIST



ENVIRONMENT, HEALTH & SAFETY MANAGER: _____

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: ATMOSPHERIC EMISSION MONITORING RESULTS

PERIOD: September-08

COMPANY : PFIZER LOUGHBEG

ADDRESS: LOUGHBEG, RINGASKIDDY, CO.CORK.
TELEPHONE: 021-4378788

LICENCE NO: P0010-04

SAMPLE TYPE: 30 MINS SAMPLE.

DATE OF SAMPLING: 26/09/2008

26/09/2008

26/09/2008

PARAMETER		FREQUENCY	LICENCE LIMIT (mg/Nm ³)	DR1-03		DR1-04		CB101		CB102		CB201	
R		Y		RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N
ORGANICS CLASS 1						Not in Use		<0.12	Y	<0.12	Y	Not in Use	
MDC CEN 13649		monthly	20mg/Nm3	<0.12	Y			<0.12	Y				
ORGANICS CLASS 2								<0.12	Y	<0.12	Y		
Acet.		monthly	100mg/Nm3	<0.12	Y			<0.12	Y				
Tol.				<0.12	Y			<0.12	Y				
MTBE				<0.12	Y			<0.12	Y				
MeOH				<0.12	Y			<0.12	Y				
ETAC				<0.12	Y			<0.12	Y				
THF				<0.12	Y			<0.12	Y				
Acetonitrile				<0.12	Y			<0.12	Y				
IPA				<0.12	Y			<0.12	Y				
Hex.		<0.12	Y	<0.12	Y								
CEN 13649								<0.12	Y				
PARTICULATES CEN 13284													
CEN 13284		annually	1.0mg/Nm3	<0.18	Y	N/A		N/A					
HYDROGEN CHLORIDE CEN 1911						Quarterly	CB1-01 10mg/m3 CB 1-02 20mg/Nm3	N/A		1.1	Y	1.8	Y

TECHNICAL SPECIALIST



ENVIRONMENT, HEALTH & SAFETY MANAGER:

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: ATMOSPHERIC EMISSION MONITORING RESULTS

PERIOD: October-08

COMPANY : PFIZER LOUGHBEG

ADDRESS: LOUGHBEG, RINGASKIDDY, CO.CORK.
TELEPHONE: 021-4378788

LICENCE NO: P0010-04

SAMPLE TYPE: 30 MINS SAMPLE.

DATE OF SAMPLING: 09/10/2008

09/10/2008

09/10/2008

PARAMETER	FREQUENCY	LICENCE LIMIT (mg/Nm ³)	DR1-03		DR1-04		CB101		CB102		CB201	
			RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N
ORGANICS CLASS 1												
MDC CEN 13649	monthly	20mg/Nm ³	<0.14	Y	Not in Use		<0.14	Y	<0.14	Y	Not in Use	
ANIS CLASS	monthly	100mg/Nm ³										
Acet.			<0.14	Y			<0.14	Y	<0.14	Y		
Tol.			<0.14	Y			<0.14	Y	<0.14	Y		
MTBE			<0.14	Y			<0.14	Y	<0.14	Y		
MeOH			<0.14	Y			<0.14	Y	<0.14	Y		
ETAC			<0.14	Y			<0.14	Y	<0.14	Y		
THF			<0.14	Y			<0.14	Y	<0.14	Y		
Acetonitrile			<0.14	Y			<0.14	Y	<0.14	Y		
IPA			<0.14	Y			<0.14	Y	<0.14	Y		
Hex.			<0.14	Y			<0.14	Y	<0.14	Y		
CEN 13649												
PARTICULATES												
CEN 13284	Annually	1.0mg/Nm ³	<0.13	Y			N/A		N/A			
HYDROGEN CHLORIDE												
CEN 1911	Quarterly	CB1-01 10mg/m ³ CB 1-02 20mg/Nm ³	N/A				2.8	Y	1.2	Y		

TECHNICAL SPECIALIST



ENVIRONMENT, HEALTH & SAFETY MANAGER:

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: ATMOSPHERIC EMISSION MONITORING RESULTS

PERIOD: November-08

COMPANY : PFIZER LOUGHBEG

ADDRESS: LOUGHBEG, RINGASKIDDY, CO.CORK.

TELEPHONE: 021-4378788

LICENCE NO: P0010-04

SAMPLE TYPE: 30 MINS SAMPLE.

DATE OF SAMPLING: 12/11/2008

12/11/2008

12/11/2008

PARAMETER	FREQUENCY	LICENCE LIMIT (mg/Nm³)	RESULT (mg/Nm³)	COMPLIANCE Y/N	RESULT (mg/Nm³)	COMPLIANCE Y/N	RESULT (mg/Nm³)	COMPLIANCE Y/N	RESULT (mg/Nm³)	COMPLIANCE Y/N	RESULT (mg/Nm³)	COMPLIANCE Y/N
DR1-03					DR1-04		CB101		CB102		CB201	
ORGANICS CLASS I					Not in Use		<0.17	Y	<0.17	Y	Not in Use	
MDC CEN 13649	monthly	20mg/Nm3	<0.17	Y			<0.17	Y	<0.17	Y		
ORGANICS CLASS II												
Acet.	monthly	100mg/Nm3	<0.17	Y			<0.17	Y	<0.17	Y		
Tol.			<0.17	Y			<0.17	Y	<0.17	Y		
MTBE			<0.17	Y			<0.17	Y	<0.17	Y		
MeOH			<0.17	Y			<0.17	Y	<0.17	Y		
ETAC			<0.17	Y			<0.17	Y	<0.17	Y		
THF			<0.17	Y			<0.17	Y	<0.17	Y		
Acetonitrile			<0.17	Y			<0.17	Y	<0.17	Y		
IPA			<0.17	Y			<0.17	Y	<0.17	Y		
Hex.	<0.17	Y	<0.17	Y			<0.17	Y				
CEN 13649												
PARTICULATES CEN 13284	annually	1.0mg/Nm3	<0.13	Y								
HYDROGEN CHLORIDE CEN 1911	Quarterly	CB1-01 10mg/m3 CB 1-02 20ma/Nm3	N/A		0.3	Y	0.2	Y				

TECHNICAL SPECIALIST



ENVIRONMENT, HEALTH & SAFETY MANAGER:

ANNUAL ENVIRONMENTAL REPORT 2008

REPORT: ATMOSPHERIC EMISSION MONITORING RESULTS

PERIOD: December-08

COMPANY : PFIZER LOUGHBEG

ADDRESS: LOUGHBEG, RINGASKIDDY, CO.CORK.

TELEPHONE: 021-4378788

LICENCE NO: P0010-04

SAMPLE TYPE: 30 MINS SAMPLE.

DATE OF SAMPLING: 18/12/2008

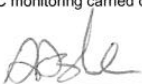
18/12/2008

18/12/2008

PARAMETER	FREQUENCY	LICENCE LIMIT (mg/Nm ³)	DR1-03		DR1-04		CB101		CB102		CB201	
			RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N	RESULT (mg/Nm ³)	COMPLIANCE Y/N
ORGANICS CLASS I												
MDC	monthly	20mg/Nm ³	*	Y/N			<0.33	Y	6.17	Y		
CEN 13649	monthly	100mg/Nm ³										
Acet.			*	Y			<0.33	Y	<0.33	Y		
Tol.			*	Y			<0.33	Y	<0.33	Y		
MTBE			*	Y			<0.33	Y	<0.33	Y		
MeOH			*	Y			<0.33	Y	<0.33	Y		
ETAC			*	Y			<0.33	Y	<0.33	Y		
THF			*	Y			<0.33	Y	<0.33	Y		
Acetonitrile			*	Y			<0.33	Y	<0.33	Y		
IPA			*	Y			<0.33	Y	<0.33	Y		
Hex.			*	Y			<0.33	Y	<0.33	Y		
CEN 13649												
PARTICULATES												
CEN 13284	annually	1.0mg/Nm ³	*	Y			N/A		N/A			
HYDROGEN CHLORIDE												
CEN 1911	Quarterly	CB1-01 10mg/m ³ CB 1-02 20mg/Nm ³	N/A				0.84	Y	0.77	Y		

* DR1-03 VOC and TOC monitoring carried out to investigate the issues that were reported to the EPA on 8-12-08

TECHNICAL SPECIALIST



ENVIRONMENT, HEALTH & SAFETY MANAGER:

APPENDIX 3:

Copy of section from hazardous waste log

Pfizer Solvent & Waste Information Management System - [Doody, Celine] - [Solvent Offsite Listing]								
File Listings Options Solvents Offsite Window Help								
Load Date	Load description	Load Note	M Number	UN Number	Agent TFS No.	Waste Destination	Waste Disposal	
31/01/2008	THF / IPA	21-23	M80/08	UN1993	N/A	AVR - Fermoy	R13 accum	
31/01/2008	Waste Toluene	21-22	M79/08	UN1294	N/A	Pfizer Ringaskiddy	Solvent Rec	
30/01/2008	Methanol / Toluene	21-16	M77/08	UN1992	N/A	AVR - Fermoy	SLF	
30/01/2008	MTBE / Toluene	21-18	M76/08	UN1993	311469/32	SRM (CMR) Sunderland	Solvent Rec	
30/01/2008	Waste Toluene	21-22	M75/08	UN1294	N/A	Pfizer Ringaskiddy	Solvent Rec	
29/01/2008	Not Applicable	21-16 SEE LOAD COMMENT	M74/08	UN1993	311436/1	AVG	SLF	
29/01/2008	THF / IPA	21-01	M73/08	UN1993	N/A	AVR - Fermoy	SLF	
28/01/2008	Methanol / Toluene	21-16	M72/08	UN1992	N/A	AVR - Fermoy	SLF	
28/01/2008	THF/Methanol	21-02	M71/08	UN1992	N/A	AVR - Fermoy	R13 accum	
28/01/2008	Not Applicable	TK-51 SEE LOAD COMMENT	M70/08	UN1993	043286/68	GVS	Incineration	
28/01/2008	Waste Toluene	21-22	M69/08	UN1294	N/A	Pfizer Ringaskiddy	Solvent Rec	
28/01/2008	MTBE / Toluene	21-18	M68/08	UN1993	311469/30	SRM (CMR) Sunderland	Solvent Rec	
28/01/2008	Methanol / Toluene	21-16	M67/08	UN1992	N/A	AVR - Fermoy	SLF	
28/01/2008	Waste Toluene	21-22	M65/08	UN1294	N/A	Pfizer Ringaskiddy	Solvent Rec	
25/01/2008	MTBE/Methanol	21-16	M64/08	UN1992	N/A	AVR - Fermoy	SLF	
25/01/2008	MTBE / Toluene	21-18	M62/08	UN1993	311469/29	SRM (CMR) Sunderland	Solvent Rec	
25/01/2008	Waste Toluene	21-22	M61/08	UN1294	N/A	Pfizer Ringaskiddy	Solvent Rec	
24/01/2008	Hexane/Methanol	21-16	M60/08	UN1992	N/A	AVR - Fermoy	SLF	
24/01/2008	MDC and Toluene	21-01	M59/08	UN1992	N/A	AVR - Fermoy	SLF	
23/01/2008	MTBE / Toluene	21-18	M58/08	UN1993	311469/27	SRM (CMR) Sunderland	Solvent Rec	
23/01/2008	Waste Toluene	21-22	M56/08	UN1294	311291/9	Haltermann	Solvent Rec	
22/01/2008	Not Applicable	21-01 SEE LOAD COMMENT	M55/08	UN1993	N/A	AVR - Fermoy	SLF	
22/01/2008	THF/Methanol	21-02	M54/08	UN1992	N/A	AVR - Fermoy	R13 accum	
22/01/2008	Hexane/Methanol	21-16	M53/08	UN1992	311172/42	SRM (CMR) Morecombe	SLF	
22/01/2008	Not Applicable	21-16 SEE LOAD COMMENT	M52/08	UN1992	N/A	AVR - Fermoy	R13 accum	
22/01/2008	Waste Toluene	21-22	M51/08	UN1294	N/A	Pfizer Ringaskiddy	Solvent Rec	
21/01/2008	MTBE / Toluene	21-18	M50/08	UN1993	311469/26	SRM (CMR) Sunderland	Solvent Rec	
21/01/2008	THF / IPA	21-16	M49/08	UN1993	042377/11	SRM (CMR) Morecombe	SLF	
21/01/2008	Waste Toluene	21-22	M48/08	UN1294	N/A	Pfizer Ringaskiddy	Solvent Rec	
21/01/2008	THF / IPA	21-23	M47/08	UN1993	311285/3	AVR - Fermoy	R13 accum	
21/01/2008	MTBE / Toluene	21-18	M46/08	UN1993	311469/25	SRM (CMR) Sunderland	Solvent Rec	
18/01/2008	Acetone and Toluene	21-16	M45/08	UN1993	N/A	AVR - Fermoy	SLF	
18/01/2008	THF / IPA	21-01	M43/08	UN1993	N/A	AVR - Fermoy	SLF	
18/01/2008	Waste Toluene	21-22	M42/08	UN1294	N/A	Pfizer Ringaskiddy	Solvent Rec	
Load Date between 01/01/2008 and 31/01/2008								
Start Inbox - Microsoft ... Celine FW: Payment Requ... PIP Loughbeg - Pac... Pfizer SWIMS 10:51								

APPENDIX 4:

Environmental Incidents & Complaints 2008

By Passes:

Date	25/01/08	05/02/08
Parameter	By pass	By pass
Emission Point Ref	CB 1-01	CB 1-01
Cause	The cause of the bypass was a high LEL	The bypass on the TBIN process occurred as a result of upgrade work being completed on the TOC panels
Corrective Action	The vent valve was adjusted	On completion of the upgrade work the unit was reset
Duration of by pass	The Durr unit was down for approx 45 minutes	The Durr unit was down for approx 50 minutes
Time taken for production to shut down	Processing was put on hold within 10 minutes	TBIN processing was put on hold within 10 minutes
Confirmation that production was shutdown safely	Yes	Yes

Date	10/03/08	17/05/08
Parameter	By pass	By pass
Emission Point Ref	CB 1-01	CB 1-01
Cause	The cause of the bypass was a high LEL on one of the analysers(other analysers reading was lower)	The cause of the by pass was a power dip on site
Corrective Action	Check the sensitivity of the LEL analysers	Not applicable
Duration of by pass	30 minutes	60 minutes
Time taken for production to shut down	15 minutes	5 minutes
Confirmation that production was shutdown safely	Yes	Yes

By Passes:

Date	05/07/08	10/08/08	16/08/08
Parameter	By pass	By pass	By pass
Emission Point Ref	CB 1-01	CB 1-01	CB 1-01
Cause	The cause of the by pass was a power dip on site due to inclement weather	The cause of the by pass was a high LEL	The cause of the by pass was a power dip on site due to inclement weather
Corrective Action	Not applicable	The vent valve was adjusted	Not applicable
Duration of by pass	50 minutes	25 minutes	6 hours 30 mins
Time taken for production to shut down	5 minutes	10 minutes	10 minutes
Confirmation that production was shutdown safely	Yes	Yes	Yes

Date	07/09/08	11/09/08	17/09/08
Parameter	By pass	By pass	By pass
Emission Point Ref	CB 1-01	CB 1-01	CB 1-01
Cause	The cause of the by pass was a high LEL	The cause of the by pass was a high LEL	The cause of the by pass was a high LEL
Corrective Action	The vent valve was adjusted	The vent valve was adjusted	The vent valve was adjusted
Duration of by pass	7 minutes	18 minutes	10
Time taken for production to shut down		5 minutes	5 minutes
Confirmation that production was shutdown safely	Safe shutdown procedures in CB1 and CB2 were on going when the Durr went back to processing	Yes	Yes

By Passes:

Date	03/12/08	
Parameter	By pass	
Emission Point Ref	CB 1-01	
Cause	The cause of the by pass was a high LEL	
Corrective Action	Systems were modified	
Duration of by pass	30 minutes	
Time taken for production to shut down	5-10minutes	
Confirmation that production was shutdown safely	Yes	

Incidents:

Date	29/01/08	09/01/08	28/01/08	12/02/08
	The ion selective electrode for ammonia testing in accordance with Schedule C.3.2 is broken, the powder pillow test method will be used until receipt of a replacement unit. TOC monitoring on DR1-03 is being completed in accordance with Schedule C.1.2 however the data is not being recorded on the data logger. This system is currently being updated as referred to in our letter of 07/01/08	Toxicity testing results of Final Effluent: 48h LC50 Tisbe battagliai 43.5 T.U 48h LC50 Tigriopus Brevicornis <3.1T.U	The Ammonia concentration in the composite sample of the WWTP outfall to sewer (SE1) on 28th January (monitored on the 29th January) was 54 mg/l. Plant effluent was immediately diverted to the firewater retention pond in order to avoid any potential breach of the ammonia licence limit. (15:30 on 29th January) Prior to the effluent being diverted approx 91m3 of effluent was discharged to sewer. The composite sample for the day (24hrs) had an ammonia concentration of 50 mg/l. There has been no effluent discharge from the site since 15:30 on 29th January. Discharge through SE1 will recommence when the Ammonia concentrations are under licence limits and control	We wish to inform the Agency that the composite sampler on SE1, the final effluent discharge from the facility is not operational. The final effluent sample for Monday 11th February and today, Tuesday 12th February will be grab samples. The supplier has been requested to send an engineer to repair the unit. There is a firm timescale for attendance/completion as

Date	28/02/08	07/03/08	26/03/08																																		
	Further to my telephone conversation with Mr Caoimhin Nolan yesterday, the following TOC readings were recorded at CB1-02 on the morning of 26/2/08. <table><thead><tr><th>CB1-02</th><th>Time</th><th>TOC Result mg/m3</th></tr></thead><tbody><tr><td></td><td>06.00 – 06.30</td><td>204</td></tr><tr><td></td><td>06.30 – 07.00</td><td>293</td></tr></tbody></table> The issue arose due to an incorrect charge of hot water to the CB1-02 scrubber. Production was immediately shutdown in a safe manner and did not recommence until 09.00hrs when the issue had been identified and rectified. TOC results then reverted to within the normal range.	CB1-02	Time	TOC Result mg/m3		06.00 – 06.30	204		06.30 – 07.00	293	Please be advised that the programme recording the TOC from CB 1-01, CB1-02, DR 1-03 shut down due to operator error. The TOC trends for CB1-01, CB1-02 are available on DCS (computer control system), however information for DR1-03 is not available. The following corrective actions are currently being implemented: the shut down option on the control panel is being removed/de-activated (Completion date 31/03/08) security protection to be installed on the control screen.	Further to a conversation with Mr John Doheney this morning, please be advised that the scraper mechanism on one of the two clarifiers stopped operating at approx 16.30hrs on the 25/03/08. Pfizer believes that this is a Category 3 incident. All flow from the waste water treatment plant was diverted to the second clarifier as a result of the malfunction. While this diversion was taking place, the operation of the remaining clarifier was impaired which lead to high solids in the final effluent on this day, monitoring results over this period are as follows: <table><thead><tr><th>Parameter</th><th>Mon 24th Composite</th><th>Tues 25th Composite</th><th colspan="2">Wed 26th Grab</th></tr></thead><tbody><tr><td>NH₃ (mg/l)</td><td>86</td><td>71</td><td colspan="2">>50</td></tr><tr><td>COD (mg/l)</td><td>1650</td><td>6220</td><td>1710 (08.00)</td><td>1030 (12.00)</td></tr><tr><td>SS (mg/l)</td><td>490</td><td>2730</td><td>390 (08.00)</td><td>280 (12.00)</td></tr><tr><td>Flow (m3)</td><td>0 *</td><td>1307</td><td colspan="2">260**</td></tr></tbody></table> *The plant has been on divert due to poor plant performance particularly NH3 and suspended solids. ** Flow so far to-day The clarifier is expected to return to operation no later than Friday 4th April. At this point we have insufficient information to determine the limits which can be met, results to-morrow will help to estimate the limits which can be met during this interim period. A full investigation into the cause of the issue is underway and appropriate corrective actions will be implemented based on the results of the investigation.	Parameter	Mon 24 th Composite	Tues 25 th Composite	Wed 26 th Grab		NH ₃ (mg/l)	86	71	>50		COD (mg/l)	1650	6220	1710 (08.00)	1030 (12.00)	SS (mg/l)	490	2730	390 (08.00)	280 (12.00)	Flow (m3)	0 *	1307	260**	
CB1-02	Time	TOC Result mg/m3																																			
	06.00 – 06.30	204																																			
	06.30 – 07.00	293																																			
Parameter	Mon 24 th Composite	Tues 25 th Composite	Wed 26 th Grab																																		
NH ₃ (mg/l)	86	71	>50																																		
COD (mg/l)	1650	6220	1710 (08.00)	1030 (12.00)																																	
SS (mg/l)	490	2730	390 (08.00)	280 (12.00)																																	
Flow (m3)	0 *	1307	260**																																		

Date	18/04/08	18 & 19 June 08
	Further to our letter of 07/01/08 re the upgrade of the Durag system, please be advised that the unit will be off line on Wednesday 23 rd April to allow for the final modifications to comply with the conditions of the IPPC licence.	High TOC readings in excess of the ELV were recorded, between June 18-19, on emission point DR1-03. This was due to the failure of heat tracing on the TOC analyser sample line. The fault was repaired and the TOC readings reverted to normal.

Date	18 & 19 June 08	05/07/08	07/10/08
	High TOC readings in excess of the ELV were recorded, between June 18-19, on emission point DR1-03. This was due to the failure of heat tracing on the TOC analyser sample line. The fault was repaired and the TOC readings reverted to normal.	The suspended solids (SS) concentration in the final effluent (SE1) on the 05/07/08 was 360mg/l, the IPPC licence limit is 250 mg/l. The suspended solids result for 06/07/08 was in compliance.	The continuous sampler on Emission Point SE1 has developed an electrical problem which we are currently trying to resolve. There will be No 24hour composite sample available at 08.00hrs on 08/10/08 as a result. We propose to take a grab sample each morning until the issue has been resolved

Date	21/11/09		
	I would like to inform the Agency that on the 20 th November, a number of high TOC readings were observed on the Dryer emission point DR1-03 which were in excess of the licence limits . The cause of these high half hourly averages are currently under investigation		

Environmental Complaints 2008

THERE WERE NO COMPLAINTS RECORDED IN 2008

APPENDIX 5:

AER Summary Information 2008/PRTR return

The electronic summary of the AER/PRTR attached.

The following volumes of LODP wastes have been included in the API volumes because they share the same EWC code & are disposed of by the same waste company etc:

1. Metal / Steel
2. Batteries
3. Pallets
4. Fluorescent Tubes
5. WEEE
6. Waste Paints
7. Lab Smalls
8. Cooking Oil
9. Solvent wastes
- 10 Food waste

Thank you,

Your AER / PRTR Emissions Data submission has been accepted by our data system.

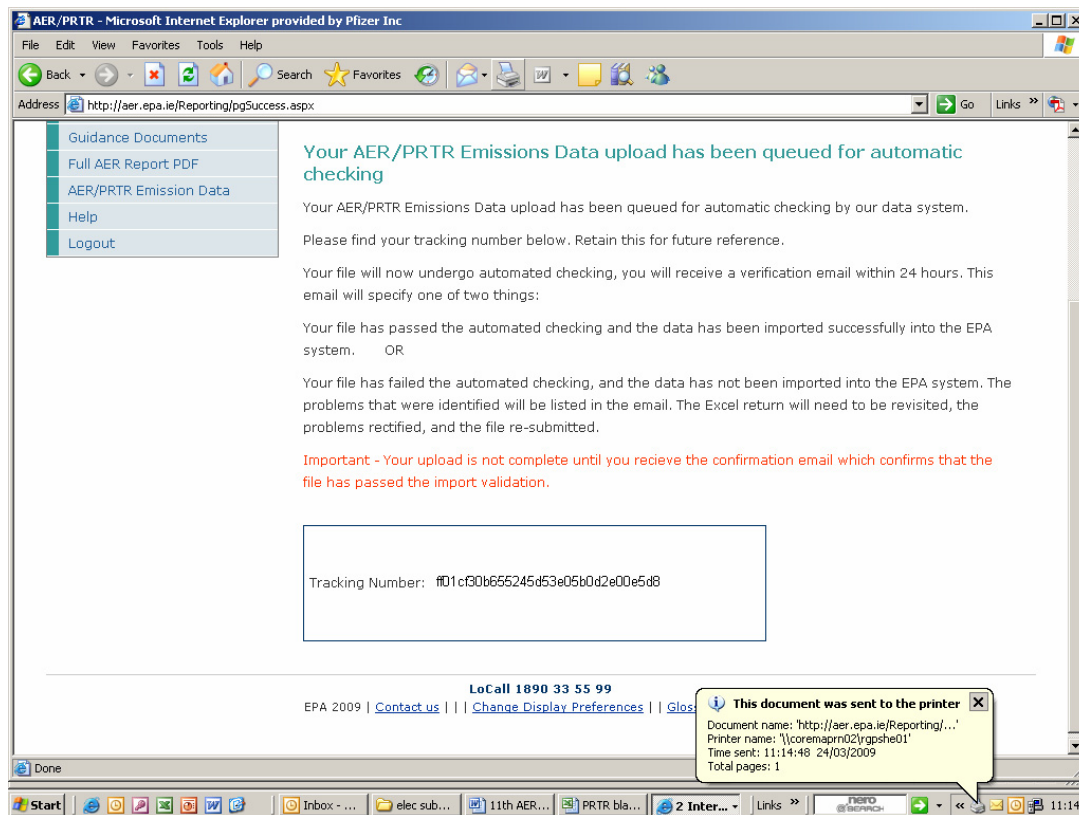
You may now proceed to print your submitted emissions and waste transfers information for insertion into your Full AER report. The Full AER Report must be submitted in BOTH hardcopy (paper) form and electronic (PDF) form.

Please retain the receipt / tracking number below in case of future queries about this submission and in case a request is made by an authorised person in this regard.

ff01cf30b655245d53e05b0d2e00e5d8

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| PRTR# : P0010 | Facility Name : Pfizer Overseas Pharmaceuticals and C.P. Pharmaceuticals International C.V. (a limited partnership represented by and acting through Pfizer Manufacturing LLC and Pfizer Production LLC) trading as Pfizer Ireland Pharmaceuticals | Filename : PRTR blank P0010_2008 submission.xls | Return Year : 2008 |

24/03/2009 11:07

AER Returns Worksheet

Version 1.1.01

REFERENCE YEAR	2008
----------------	------

1. FACILITY IDENTIFICATION

Parent Company Name	Pfizer Overseas Pharmaceuticals and C.P. Pharmaceuticals International C.V. (a limited partnership represented by and acting through Pfizer Manufacturing LLC and Pfizer Production LLC) trading as Pfizer Ireland Pharmaceuticals
Facility Name	Pfizer Overseas Pharmaceuticals and C.P. Pharmaceuticals International C.V. (a limited partnership represented by and acting through Pfizer Manufacturing LLC and Pfizer Production LLC) trading as Pfizer Ireland Pharmaceuticals
PRTR Identification Number	P0010
Licence Number	P0010-04

Waste or IPPC Classes of Activity

No.	class_name
5.16.0	The use of a chemical or biological process for the production of basic pharmaceutical products.
11.1.0	The recovery or disposal of waste in a facility, within the meaning of the Waste Management Act, 1996, which facility is connected or associated with another activity specified in this Schedule in respect of which a licence or revised licence under P...

Address 1	Loughbeg Active Pharmaceutical Ingredients Plant
Address 2	Loughbeg
Address 3	Ringaskiddy

Address 4	County Cork
Country	Ireland
Coordinates of Location	17890632
River Basin District	
NACE Code	212
Main Economic Activity	Manufacture of pharmaceutical preparations
AER Returns Contact Name	Finbarr Fitzgerald
AER Returns Contact Email Address	jennifer.carolan@pfizer.com
AER Returns Contact Position	Environment, Health & Safety Manager
AER Returns Contact Telephone Number	021-4378788
AER Returns Contact Mobile Phone Number	
AER Returns Contact Fax Number	021-4378697
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	0
User Feedback/Comments	Limits for Class 11 & 111 TA luft solvents are the same , so results for these classes have been combined. Combined waste figures for the API and DP sites for : metal/steel, batteries, pallets, fluorescent tubes, WEEE, waste paints, lab smalls, cooking oil, solvent wastes and food waste
Web Address	

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
4e	Installations using a chemical or biological process for the production on an industrial scale of basic pharmaceutical products
5b	Installations for the incineration of non-hazardous waste in the scope of Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste

3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)

Is it applicable?

Have you been granted an exemption ?	
If applicable which activity class applies (as per Schedule 2 of the regulations) ?	
Is the reduction scheme compliance route being used ?	

4.1 RELEASES TO AIR

(P1408 - 1405) Facility Name: Pfizer Germany Pharmaceuticals GmbH, P. Pharmaceuticals Germany GmbH is a wholly owned subsidiary of Pfizer Inc. (US00061146)

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SECTION A: SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR										
POLLUTANT		METHOD			QUANTITY					
No. Annex II	Name	M/C/E	Method Used		CB1-01	CB1-02	CB1-03	UT1-00	UT1-01	T (Total) KG/Year
			Method Code	Designation or Description						
02	Carbon monoxide (CO)	M	PER	Electro chemical cell	0.0	0.0	0.0	1.8	0.0	1.8
07	Non-methane volatile organic compounds (NMVOC)	M	OTH	Gas Chromatography	365.0	31.0	5.6	0.0	0.0	421.6
06	Particulate matter (PM10)	M	OTH	Gravimetric	0.0	0.0	2.6	0.0	0.0	2.6
11	Sulphur oxides (SOx/SO2)	M	PER	Electro chemical cell	0.0	0.0	0.0	4.0	0.0	4.0
00	Chlorine and inorganic compounds (as HCl)	M	OTH	Ion Chromatography	591.0	194.0	0.0	0.0	0.0	785.0
					0.0	0.0	0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B: REMAINING PRTR POLLUTANTS

RELEASES TO AIR										
POLLUTANT		METHOD			QUANTITY					
No. Annex II	Name	M/C/E	Method Used		CB1-01	CB1-02	CB1-03	UT1-00	UT1-01	T (Total) KG/Year
			Method Code	Designation or Description						
73	Toluene	M	OTH	Gas Chromatography	47.0	16.0	2.6	0.0	0.0	65.6
35	Dichloromethane (DCM)	M	OTH	Gas Chromatography	0.0	74.0	0.0	0.0	0.0	74.0
40	Halogenated organic compounds (as AQX)	M	OTH	Ion Chromatography	591.0	194.0	0.0	0.0	0.0	785.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C: REMAINING POLLUTANT EMISSIONS (As required in your Licence)

RELEASES TO AIR													
POLLUTANT		METHOD			QUANTITY								
Pollutant No	Name	M/C/E	Method Used		CB1-01	CB1-02	CB1-03	DC1-01	CB1-05	CB1-06	CB1-07	CB1-08	Emission Point 8
			Method Code	Designation or Description									
210	Dust	C	OTH	Gravimetric	4.0732	2.156	0.8289	3.0313	0.0024	0.0	0.0	2.6	12.6918
323	Methanol	M	OTH	Gas Chromatography	0.0	0.0	0.0	0.0	0.0	66.0	0.0	0.0	66.0
203	Acetic acid	M	OTH	Gas Chromatography	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
319	Inorganic acids	M	OTH	Ion Chromatography	0.0	0.0	0.0	0.0	0.0	591.0	194.0	0.0	785.0
330	Organic solvents	M	OTH	Gas Chromatography	0.0	0.0	0.0	0.0	0.0	365.0	105.0	5.6	495.6
331	Organohalogenes	M	OTH	Gas Chromatography	0.0	0.0	0.0	0.0	0.0	0.0	74.0	0.0	74.0
230	TA Luft organic substances class 1	M	OTH	Gas Chromatography	0.0	0.0	0.0	0.0	0.0	0.0	74.0	0.0	74.0
231	TA Luft organic substances class 2	M	OTH	Gas Chromatography	0.0	0.0	0.0	0.0	0.0	365.0	31.0	5.6	421.6
226	TA Luft carcinogenic substances Class 3	M	OTH	Gas Chromatography	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
237	Volatile organic compounds (as TOC)	M	OTH	Gas Chromatography	0.0	0.0	0.0	0.0	0.0	365.0	105.0	5.6	495.6
					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

Additional Data Requested from Landfill operators

For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their flat methane (GWh) emission to the environment under 'Total' (KG/yr) for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill: Pfizer Overseas Pharmaceuticals and C.P. Pharmaceuticals International C.V. (a limited partnership represented by and acting through Pfizer Manufacturing LLC and Pfizer Production LLC) trading as Pfizer Ireland Pharmaceuticals

Please enter summary data on the quantities of methane flared and / or utilised		Method Used		Facility Total Capacity m3 per hour
T (Total) kg/Year		Method Code	Designation or Description	
Total estimated methane generation (as per site model)	0.0			N/A
Methane flared	0.0			0.0 (Total Flaring Capacity)
Methane utilised in engines	0.0			0.0 (Total Utilising Capacity)
Net methane emission (as reported in Section A above)	0.0			N/A

4.3 RELEASES TO WASTEWATER OR SEWER

| PRTR# : PQ210 | Facility Name : Pfizer Overseas Pharmaceuticals and C.P. Pharmaceuticals India

30/07/2019 11:01

SECTION A : PRTR POLLUTANTS

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER								
POLLUTANT		METHOD			QUANTITY			
No. Annex II	Name	M/C/E	Method Used		SE1		A (Accidental) KG/Year	F (Fugitive) KG/Year
			Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year		
06	Ammonia (NH3)	M	oth	Ammonia electrode		2356.0	2356.0	0.0
35	Dichloromethane (DCM)	M	oth	GC/MS		132.0	132.0	0.0
40	Halogenated organic compounds (as AOX)	M	oth	GC/MS		132.0	132.0	0.0
07	Non-methane volatile organic compounds (NMVOC)	M	oth	GC/MS		34691.0	34691.0	0.0
73	Toluene	M	oth	GC/MS		132.0	132.0	0.0
12	Total nitrogen	M	ET G032	ISO 11905-1:1998		2470.0	2470.0	0.0
13	Total phosphorus	M				320.0	320.0	0.0
24	Zinc and compounds (as Zn)	M	APHA 98					
			3030C:3111:B			37.0	37.0	0.0
						0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER								
POLLUTANT		METHOD			QUANTITY			
Pollutant No.	Name	M/C/E	Method Used		SE1		A (Accidental) KG/Year	F (Fugitive) KG/Year
			Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year		
203	Acetic acid	M	oth	gcms		3581.0	3581.0	0.0
323	Methanol	M	oth	gcms		8291.0	8291.0	0.0
331	Organohalogens	M	oth	gcms		132.0	132.0	0.0
330	Organic solvents	M	oth	gcms		35023.0	35023.0	0.0
		M				0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.4 RELEASES TO LAND

| PRTR# : P0010 | Facility Name : Pfizer Overseas Pharmaceuticals and C.P. Pharmaceuticals International C.V. (a limited partnership represented by

24/03/2009 11:07

SECTION A : PRTR POLLUTANTS

RELEASES TO LAND						
POLLUTANT		METHOD			QUANTITY	
No. Annex II	Name	M/C/E	Method Used		Emission Point 1	T (Total) KG/Year
			Method Code	Designation or Description		
					0.0	0.0
						0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO LAND						
POLLUTANT		METHOD			QUANTITY	
Pollutant No.	Name	M/C/E	Method Used		Emission Point 1	T (Total) KG/Year
			Method Code	Designation or Description		
					0.0	0.0
						0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

(PRTSR: P5010) Facility Name: Pfizer Consumer Pharmaceuticals and C.P. Pharmaceuticals International C.V. (a limited partnership represented by and acting through Pfizer Manufacturing LLC and Pfizer Production LLC trading as Pfizer Ireland)

24/12/2023 11:28

19

Transfer Destination	European Waste Code	Hazardous	Quantity T/Year	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Name and Licence / Permit No. of Recoverer / Disposer / Broker	Address of Recoverer / Disposer / Broker	Name and Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)	Licence / Permit No. of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
Within the Country	16 08 04	No	3.48	Alkaline batteries	R13	E	None	Offsite in Ireland	KMK Metals Recycling, Waste licence 113/1	Cappincur Industrial Estate, Daingean Road, Tullamore, Co. Offaly.		
Within the Country	20 01 08	No	99.03	General waste	D1	M	Weighed	Offsite in Ireland	Veolia Environmental Services, Waste licence 173/01	Forge Hill, Kinsale Road, Co. Cork		
Within the Country	20 01 01	No	7.74	Cardboard	R5	M	Weighed	Offsite in Ireland	Veolia Environmental Services, Waste licence 173/01	Forge Hill, Kinsale Road, Co. Cork		
Within the Country	15 01 04	No	5.66	Crushed metal drums	R4	M	Weighed	Offsite in Ireland	Cork Metal, Permit CK 08/01	Cork		
Within the Country	20 01 02	No	3.58	Glass	R13	M	Weighed	Offsite in Ireland	Rehab Recycling Partnership, Permit 635/03/02	Monaghan Road, Cork		
Within the Country	20 01 40	No	38.7	Metal / steel	R4	M	Weighed	Offsite in Ireland	Cork Metal, Permit CK 08/01	Cork		
Within the Country	20 01 01	No	18.646	Paper	R5	M	Weighed	Offsite in Ireland	Cork Confidential Shredding, Permit CK (B) 30/02	Blarney Business Park, Cork		
Within the Country	07 05 12	No	1389.9	Sludge	R3	M	Weighed	Offsite in Ireland	AVR Safeway, Licence WL0211/01	Foxhole, Youghal, Co. Cork		
Within the Country	07 05 12	No	52.82	Sludge	R3	M	Weighed	Offsite in Ireland	Cedar, Permit CK (S) 08/03	Minane Bridge, Co. Cork		
Within the Country	15 01 03	No	46.08	Pallets	R13	M	Weighed	Offsite in Ireland	Veolia Environmental Services, Waste licence 173/01	Forge Hill, Kinsale Road, Co. Cork		
Within the Country	15 01 10	Yes	7.36	Empty drums	D10	M	Weighed	Offsite in Ireland	AVR Safeway, Licence 50/02	Corrin, Fermoy, Co. Cork	AVR Safeway, Corrin, Fermoy, Co. Cork	Waste licence WL0211/01
To Other Countries	15 01 10	Yes	23.28	Contaminated packaging - liners	D10	M	Weighed	Abroad	SAVA	Osterweute 1, 25541 Brunsbuttel, Germany	SAVA, Osterweute 1, 25541 Brunsbuttel, Germany	Not available
Within the Country	20 01 21	Yes	0.56	Fluorescent tubes	R4	E	None	Offsite in Ireland	Irish Lamps Waste Permit 02/2000A	Black Park, Kilkenny Road, Athy, Co. Kildare	Kilkenny Road, Athy, Co. Kildare	Waste Permit 02/2000A
Within the Country	11 01 13	Yes	0.37	Kerosene	R2	E	None	Offsite in Ireland	Safety Kleen Waste Licence 99/1	Airton Road, Tallaght, Dublin	Safety Kleen, Airton Road, Tallaght, Dublin	Waste Licence 99/1
Within the Country	16 05 06	Yes	1.28	Lab smalls	D10	M	Weighed	Offsite in Ireland	AVR Safeway, Licence 50/02	Corrin, Fermoy, Co. Cork	AVR Safeway, Corrin, Fermoy, Co. Cork	Waste licence WL0211/01
To Other Countries	16 05 06	Yes	3.11	Lab smalls	D10	M	Weighed	Abroad	SAVA	Osterweute 1, 25541 Brunsbuttel, Germany	SAVA, Osterweute 1, 25541 Brunsbuttel, Germany	Not available
Within the Country	18 01 03	Yes	0.008	Medical waste	D9	E	None	Offsite in Ireland	Ecosafe Dublin Waste Licence 54/2	Unit 1, Allied Industrial Estate, Kylemore Road, Dublin	Ecosafe Dublin, Unit 1, Allied Industrial Estate, Kylemore Road, Dublin	Waste Licence 54/2
To Other Countries	16 08 07	Yes	36.88	Palladium catalyst	R4	M	Weighed	Abroad	Johnson Matthey AN8712 Variation BC 3196	20 Jeffrey's Road, Enfield, Middlesex, UK	Johnson Matthey, 20 Jeffrey's Road, Enfield, Middlesex, UK	AN8712 Variation BC 3196
Within the Country	07 05 13	Yes	11.81	Solids and packaging	R4	M	Weighed	Offsite in Ireland	AVR Safeway, Licence 50/02	Corrin, Fermoy, Co. Cork	AVR Safeway, Corrin, Fermoy, Co. Cork	Waste licence WL0211/01
To Other Countries	07 05 13	Yes	312.06	Solids and packaging	R4	M	Weighed	Abroad	SAVA	Osterweute 1, 25541 Brunsbuttel, Germany	SAVA, Osterweute 1, 25541 Brunsbuttel, Germany	Not available
To Other Countries	16 08 02	Yes	60.14	Spent nickel catalyst	R4	M	Weighed	Abroad	Nickelhuette	Sachen, Germany	Nickelhuette, Sachen, Germany	Not available
Within the Country	07 05 04	Yes	1980.5	Toluene (TK 21-22)	R2	M	Weighed	Offsite in Ireland	Pfizer Ringaskiddy IPPC Licence	Pfizer Ringaskiddy, Ringaskiddy, Co. Cork	Pfizer Ringaskiddy, Ringaskiddy, Co. Cork	IPPC Licence
To Other Countries	07 05 04	Yes	37.06	Toluene (TK 21-22)	R2	M	Weighed	Abroad	SRM AG 9248	Middleton Road, Morecambe, Lancashire, UK	SRM, Middleton Road, Morecambe, Lancashire, UK	AG 9248

Transfer Destination	European Waste Code	Hazardous	Quantity T/Year	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Name and Licence / Permit No. of Recoverer / Disposer / Broker	Address of Recoverer / Disposer / Broker	Name and Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)	Licence / Permit No. of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
Within the Country	07 05 04	Yes	79.18	Toluene (TK 21-22)	R2	M	Weighted	Offsite in Ireland	AVR Safeway, Licence 50/02	Corrin, Fermoy, Co. Cork	AVR Safeway, Corrin, Fermoy, Co. Cork	Waste licence WL0211/01
To Other Countries	07 05 04	Yes	903.72	Toluene (TK 21-22)	R2	M	Weighted	Abroad	Dow Haltermann AG 8420 Variation BK7978 AVR Safeway, Licence	Cargo Fleet Road, Middlesboro, UK	Dow, Haltermann, Cargo Fleet Road, Middlesboro, UK	AG 8420 Variation BK7978
Within the Country	07 05 04	Yes	76.22	IPA (TK 21-23)	R2	M	Weighted	Offsite in Ireland	AVR Safeway, Licence 50/02	Corrin, Fermoy, Co. Cork	Fermoy, Co. Cork	Waste licence WL0211/01
Within the Country	07 05 04	Yes	1682.98	Low CV waste (TK 21-01)	D10	M	Weighted	Offsite in Ireland	AVR Safeway, Licence 50/02	Corrin, Fermoy, Co. Cork	AVR Safeway, Corrin, Fermoy, Co. Cork	Waste licence WL0211/01
To Other Countries	07 05 04	Yes	114.06	Low CV waste (TK 21-01)	D10	M	Weighted	Abroad	GVS GmbH	Essener Str 64, Mannheim, Germany	GVS GmbH, Essener Str 64, Mannheim, Germany	Not available
To Other Countries	07 05 04	Yes	22.96	Low CV waste (TK 21-01)	D10	M	Weighted	Abroad	SAVA AVR Safeway, Licence	Osterweute 1, 25541 Brunsbuttel, Germany	SAVA, Osterweute 1, 25541 Brunsbuttel, Germany	Not available
Within the Country	07 05 04	Yes	1079.7	THF (TK 21-02)	D10	M	Weighted	Offsite in Ireland	AVR Safeway, Licence 50/02	Corrin, Fermoy, Co. Cork	Fermoy, Co. Cork	Waste licence WL0211/01
To Other Countries	07 05 04	Yes	20.32	THF (TK 21-02)	D10	M	Weighted	Abroad	SRM AG 9248 AVG	Middleton Road, Morecambe, Lancashire, UK	SRM, Middleton Road, Morecambe, Lancashire, UK	AG 9248
To Other Countries	07 05 04	Yes	1168.8	High CV waste (TK 21-16)	R2	M	Weighted	Abroad	BOIVS 0013 AVR Safeway, Licence	Borjstrasse 2, D-22113, Hamburg	AVG, Borjstrasse 2, D-22113, Hamburg	BOIVS 0013
Within the Country	07 05 04	Yes	3568.6	High CV waste (TK 21-16)	R2	M	Weighted	Offsite in Ireland	AVR Safeway, Licence 50/02	Corrin, Fermoy, Co. Cork	Fermoy, Co. Cork	Waste licence WL0211/01
To Other Countries	07 05 04	Yes	141.32	High CV waste (TK 21-16)	R2	M	Weighted	Abroad	Kommunekemi 131/070-002	Lindolmvej 3, DK5800 Nyborg, Denmark	Kommunekemi, Lindolmvej 3, DK5800 Nyborg, Denmark	131/070-002
To Other Countries	07 05 04	Yes	154.32	High CV waste (TK 21-16)	R2	M	Weighted	Abroad	SRM AG 9248 AVR Safeway, Licence	Middleton Road, Morecambe, Lancashire, UK	SRM, Middleton Road, Morecambe, Lancashire, UK	AG 9248
Within the Country	07 05 04	Yes	162.9	MTBE (TK 21-18)	R2	M	Weighted	Offsite in Ireland	AVR Safeway, Licence 50/02	Corrin, Fermoy, Co. Cork	Fermoy, Co. Cork	Waste licence WL0211/01
To Other Countries	07 05 04	Yes	2001.3	MTBE (TK 21-18)	R2	M	Weighted	Abroad	SRM AG8594 Variation BK3352	UK	SRM, Hendon Docks, Sunderland, UK	AG8594 Variation BK3352
To Other Countries	07 05 03	Yes	307.32	MDC (TK 21-29)	R2	M	Weighted	Abroad	SRM AG8039 Variation AS8675	Rye Harbour, East Sussex, UK	SRM, Rye Harbour, East Sussex, UK	AG8039 Variation AS8675
To Other Countries	07 05 01	Yes	13.36	Acetone (TK 21-31)	R2	M	Weighted	Abroad	NV Afvalverwerking 340618/11.2005 AVR Safeway, Licence	Rotterdam-Botlek, Netherlands	NV Afvalverwerking, Rotterdam-Botlek, Netherlands	340618/11.2005
Within the Country	07 05 01	Yes	36.92	Low CV waste (TK 21-32)	D10	M	Weighted	Offsite in Ireland	AVR Safeway, Licence 50/02	Corrin, Fermoy, Co. Cork	Fermoy, Co. Cork	Waste licence WL0211/01
To Other Countries	07 05 01	Yes	74.04	Low CV waste (TK 21-32)	D10	M	Weighted	Abroad	SAVA	Osterweute 1, 25541 Brunsbuttel, Germany	SAVA, Osterweute 1, 25541 Brunsbuttel, Germany	Not available
To Other Countries	20 01 27	Yes	4.296	Waste paints	D10	M	Weighted	Abroad	SAVA	Osterweute 1, 25541 Brunsbuttel, Germany	SAVA, Osterweute 1, 25541 Brunsbuttel, Germany	Not available
Within the Country	16 02 13	Yes	1.44	WEEE	R4	E	None	Offsite in Ireland	KMK Metals Recycling Waste Licence 113/1	Cappincur Industrial Estate, Daingean Road, Tullamore, Co. Offaly	KMK Metals Recycling, Cappincur Industrial Estate, Daingean Road, Tullamore, Co. Offaly	Waste Licence 113/1

* Select a row by double-clicking the Description of Waste then click the delete button



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Important - Your upload is not complete until you receive the confirmation email which confirms that the file has passed the import validation.

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APPENDIX 6:

Environmental Management Programme Report 2008

Active Pharmaceutical Ingredient Plant (API)

Environmental Management Programme 2008 Progress Report

Objective 1: Review of all operations and process (including an evaluation of practicable options) for energy and resource efficiency, reduction of emission points, use of cleaner technology, cleaner production, prevention, reduction and minimisation of waste

12.1/2007: To quantify emissions during by-passes of the thermal oxidisers.

This target will be carried over to the EMP for 2009.

1.1/2008: To upgrade the air abatement monitoring system to meet the recording requirements of the IPPC Licence.

The upgrade was completed in April 2008.

1.2/2008: To inspect and upgrade TK51 of the wastewater treatment plant to ensure compliance with the requirements of the IPPC Licence.

The tank has been emptied of both liquids and solid material. The tank is not presently in use.

Environmental Management Programme 2008 Progress Report

Objective 2: Measures for the replacement of substances / preparations classified under Directive 67/548/EEC.

2.1/2008: To identify and replace (as far as possible by less harmful substances / preparation) the substances / preparations which fall under the requirements of Directive 67/548/EEC.

This target will be carried over to the EMP for 2009.

Environmental Management Programme 2008 Progress Report

Objective 3: Identification and reduction of fugitive emissions

3.1/2008: To review the requirement for a catchment system to collect any leaks from flanges and valves of all over ground pipes used to transport material over water.

This target will be carried over to the EMP for 2009.

3.2/2008: To identify and reduce fugitive emissions on site.

This target will be carried over to the EMP for 2009.

Environmental Management Programme 2008 Progress Report

Objective 4: Energy use reduction and efficiency

4.1/2008: To complete six sigma energy resource reduction projects.

The Six Sigma projects have commenced but may not be completed in light of the site sale.

4.2/2008: To reduce the cooling towers system by 3%.

In relation to the investigation into the feasibility of altering the CB1 cooling towers to optimise pumping, this was not undertaken. The work to alter the central utilities building cooling tower floating set point control and to rebalance the central utilities towers to run on three cells have been completed.

4.3/2008: To reduce refrigeration systems energy by 3%.

A number of projects were included under this target:

- Cross connect all cooling water users in the central utilities building.

The project was reviewed. No action was taken in light of its complexity and time to site sale.

- Rebalance the chilled water loop in CB2.

90% of the HVAC systems have been shutdown thereby leading to a reduction in chilled demand.

- Investigate the use of secondary cooling water pumps only.

The project was reviewed. No action was taken in light of time to site sale.

- Modify the cold syltherm pumps control algorithm.

The system has been shutdown

- Reduce chilled water primary circuit flow in the Technical Building.

This project is complete.

- Improve chilled water secondary control

The engineering pre-work is complete. In Q1 2009, it will be switched to the control of the Tablet Plant.

- Revise the syltherm chillers control system logic.

The system has been shutdown

- Lower the chilled water pressure set point.

The system is currently on delivered pressure control. The control setting has been reduced from 5 Bar to 4.7 Bar

4.4/2008: To increase boiler efficiency system by 3%.

No action was taken on this target in light of the site sale.

4.5/2008: To carry out an energy audit to comply with Condition 7.1 of the IPPC Licence.

This target will be carried over to the EMP for 2009.

4.6/2008: To reduce HVAC energy by 5%.

No action was taken on this target in light of the site sale. The HVAC focus was on CB2 shutdown.

Environmental Management Programme 2008 Progress Report

4.7/2008: To run an energy awareness programme for 2008.

Energy awareness initiatives were run throughout 2008.

Environmental Management Programme 2008 Progress Report

Objective 5: Minimise water demand and the volume of trade effluent discharge

5.1/2008: To reduce water consumption by 3%

The fire main leak on site was not repaired.

Environmental Management Programme 2008 Progress Report

Objective 6: Efficiency of the use of raw materials in all processes (having regard to the reduction in waste generated)

In light of the site's announcement to close / sell the facility, process improvement works are not currently being undertaken.
In the event that the site is sold, this objective will be revisited and targets developed.

APPENDIX :

Environmental Management Programme Report 2008

Loughbeg Drug Product Plant (LODP)

Environmental Management Programme Report 2008

Loughbeg Drug Product Plant (LODP)

Objective 1: Waste Reduction / Recycling

Objective 1: To improve levels of Recovery, Reuse and Recycling of Waste Material

1.1 / 2006: Investigate further possible segregation of general waste and percentage recycled by Total Waste Management provider, Veolia

ON HOLD - In terms of better waste management and increasing recycling levels the following waste stream was targeted

- identifying a recycling outlet for cooking oil

ENVA Oil was identified for recycling cooking oil but this initiative has been placed on hold pending the de-coupling of the LOAPI and LODP sites.

1.2 / 2008: Increase awareness within the plant to decrease the levels of non-hazardous unnecessarily sent for incineration and to increase recycling levels.

ONGOING - A waste audit was conducted to determine the amount of non-hazardous waste unnecessarily sent for incineration.

From this, an awareness campaign was run specifically for the laboratory personnel supported with the provision of extra quantities of recycling bins and better labeling of all waste bins. Also, clear plastic recycling bins were placed in the Manufacturing team rooms to encourage better segregation of clean plastic and cardboard waste.

1.3 / 2008 – Reduce volumes of waste coating suspension

COMPLETED - The process of coating the finished LIPITOR tablets requires, firstly, the production of coating suspension. This process involves a certain amount of coating suspension being sent to waste and ultimately incinerated. Practices were changed so that the amount of waste coating suspension produced was reduced resulting in the plant recovering an extra 600kgs of suspension per week that had previously been incinerated.

1.4 / 2008 – Reduce the volumes of fibreboard waste

COMPLETED - In the past the plant purchased fibre keg drums to collect tableting dust waste for disposal offsite via incineration. In addition, one of the raw materials purchased by the plant is delivered in similar kegs. Once emptied of its contents these kegs are dechimed and sent for recycling.

Environmental Management Programme Report 2008

Loughbeg Drug Product Plant (LODP)

The new practice is that the raw material kegs will be re-used for the waste dust collections. This eliminates the purchase of separate kegs for waste dust and reduces the amount of dechimbing required.

1.5 / 2008 – Re-use fibreboard drums

ONGOING – Working with the Pfizer LIAPI site to reduce the amount of fibre drums in use by re-using them.

The active ingredient used in the production of LIPITOR is produced by the Pfizer LIAPI plant and is transported to the LODP plant in fibre drums. These drums are then dechimbed and sent for recycling (after one use only).

The plan is to empty the drums of their contents, send them back to LIAPI so that they can be returned again with another batch of active ingredient. It is believed that this will result in 100 drums per week being re-used. There are some quality issues to resolve so this work will continue into 2009.

1.6 / 2009 – Reduce volumes of waste granulation solution

COMPLETED – The process of turning the initial tablet dust into granulate requires the production of solution. The relevant recipe was changed resulting in a reduction of waste granulation solution by 85kgs per batch.

1.3 / 2005 – Examine Alternatives for waste treatment / Abatement Systems - investigate the feasibility of the biodegradation of waste LIPITOR

Due to other priorities this project was not progressed in 2008.

Environmental Management Programme Report 2008

Loughbeg Drug Product Plant (LODP)

Objective 2: Environmental Compliance / General Environmental Management

2.1 / 2007 - In the light of Pfizer business decision to divest itself of the LOAPI plant, investigate what licensing implications this has for the LODP plant. Note: the LODP and LOAPI plants share an IPPC licence.

Work ongoing / will be carried forward to 2009.

The LOAPI plant is being sold and will cease to be part of the Pfizer business in April 2009.

The new owner of the LOAPI plant has also purchased its waste water treatment plant and will continue to treat waste water from the LODP plant. Service levels and costs have been agreed between the two sites.

The new owners of the LOAPI plant will retain the existing IPPC licence (subject to any necessary reviews by the EPA) and the LODP plant will exit out of that licence subject to an EPA inspection.

2.2 / ongoing - Improve Colleague Awareness of energy conservation

A series of budget discussions & planning meetings with plant colleagues highlighted energy usage, associated costs and required savings for 2009 to ensure the future competitiveness of the business.

Information bulletins to plant colleagues throughout the year focused on energy & water usage and listed ways in which each colleague could reduce usage of same.

2.3 / 2005 - Assess the feasibility of installing meters in the LODP plant to assess water and energy usage.

ONGOING – Last meter, steam, to be installed in Feb. 2009.

2.4 / 2005 - Developing a plant energy metric system

ONGOING - Linked to 2.3 / 2005 above. Will continue to be progressed in 2009.

2.5 / 2007 – Size of sampling ports on air emission vents to be increased to facilitate in-stack isokinetic sampling in line with Section 5 of EPA guidance document “Air Emissions Sampling Facilities”.

COMPLETED.

2.6 / 2008 – Ensure compliance with IPPC licence (Condition 7.1) with reference to energy efficiency audits

Environmental Management Programme Report 2008

Loughbeg Drug Product Plant (LODP)

COMPLETED – Summary of EIRDATA Energy Efficiency audits included in Section 4 of this AER.

Objective 3: Reduce Energy Usage

3.1 / 2007 – Optimise WIP process

COMPLETED in July 2008.

3.2 / 2007 – Assess feasibility of shutting down GMP HVAC units outside production hours

ONGOING – following work has been completed:

AHU 909 (Phase 1 Warehouse)

AHU 914 (Clean / IBC Storage – Manufacturing)

AHU 911 (QC in setback mode)

Remainder of units are located in Good Manufacturing Practice (GMP) areas and further assessments / investigations are required to ensure that product quality is not adversely impacted by progressing this energy saving initiative.

3.3 / 2008 – Increase \Chilled water supply temperature to LODP from 6 degrees to 8 degrees Celsius

COMPLETED in May 2008

Objective 4: Reduction in steam usage

4.1 / 2006 – Optimise HVAC System by setting GMP units to setback mode running (reduce flows)

Not being pursued – further analysis showed that shutting down GMP HVAC units at weekends could yield greater energy efficiencies and cost savings (Ref. 3.2)

APPENDIX 7:

Schedule of Objectives & Targets Environmental Management Programme 2009

Active Pharmaceutical Ingredient (API)

Approved by:

***Environmental
Management
Programme***



Page 127 of 12

Revision No: 19

Issue Date: 08/01/09

Document Code: E 19

1.0 INTRODUCTION

General

The Environmental Management Programme, incorporating the schedule of objectives and targets, is prepared in accordance with the requirements of Condition 2 of Pfizer Ireland Pharmaceuticals Loughbeg's Integrated Pollution Prevention and Control Licence (Reg. No. P0010-04) and the International Standard ISO 14001. Cognisance has also been taken of the sections relating to the preparation of EMPs contained in the EPA's Guidance Note for Annual Environmental Reports.

Pfizer Loughbeg has been issued with an IPPC Licence. This document sets out Pfizer's requirements for establishing environmental objectives and targets and an Environmental Management Programme and is designed to ensure that the company's performance is continually improving.

The objectives and targets and the EMP have been prepared with reference to the Register of Environmental Aspects and Impacts and in particular to the significant environmental impacts identified in the Register.

Environmental Performance Indicators (specific expressions which will provide information about Pfizer Loughbeg's environmental performance) have been integrated, where practicable, into the EMP to provide quantifiable objectives and targets.

Approved by:

***Environmental
Management
Programme***



Page 128 of 12

Revision No: 19

Issue Date: 08/01/09

Document Code: E 19

2.0 ENVIRONMENTAL MANAGEMENT PROGRAMME

This section sets out the Environmental Management Programme for Pfizer Loughbeg. The programme is broken down into a number of categories as follows:

- Review of all operations and process (including an evaluation of practicable options) for:
 - energy and resource efficiency
 - reduction of emission points
 - use of cleaner technology
 - cleaner production
 - prevention, reduction and minimisation of waste (inc. waste reduction targets)
- Measures for the replacement of substances / preparations classified under Directive 67/548/EEC.
- Identification and reduction of fugitive emissions.
- Energy use reduction and efficiency.
- Reduction in the quantity of water used on site including recycling and reuse initiatives.
- Efficiency of the use of raw materials in all processes (having regard to the reduction in waste generated).

For each of these headings, the following information is outlined:

- Objective
- Rationale behind the objective
- Specific targets to achieve the objective
- Plan to achieve the targets
- Timescale
- Persons responsible

Approved by:

PFIZER IRELAND PHARMACEUTICALS - LOUGHBEG API

***Environmental
Management
Programme***



Revision No: 19

Issue Date: 08/01/09

Document Code: E 19

1.0 Objective	Review of all operations and process (including an evaluation of practicable options) for: - energy and resource efficiency (see Objective No. 4) - reduction of emission points - use of cleaner technology - cleaner production - prevention, reduction and minimisation of waste (inc. waste reduction targets)			
Rationale:	Specific requirements relating to the replacement of substances / preparations classified under Directive 67/548/EEC are contained in Pfizer Loughbeg's IPPC Licence (Reg. No. P 0010-04).			
No.	Target	Plan	Timescale	Responsibility
1.1 / 2009	To modify the site's waste water treatment facility to allow it to treat the lower COD and hydraulic load as a result of the site sale.	Gain CPA approval.	January 2009	Environmental Team Leader
		Engineering to implement the necessary changes to the plant.	March 2009	Senior Project Engineer
1.2 / 2009	To remove the Tablet Plant from the IPPC licence and transfer the licence to the new owner	Submit application to EPA to remove the Tablet Plant from the existing IPPC licence.	January 2009	Environmental Team Leader
		Transfer the IPPC licence to the new owners.	April 2009	Environmental Team Leader
12.1 / 2007	To quantify emissions during by passes of the thermal oxidisers.	On gaining approval from the EPA, the site will formalise the approach for the quantification and recording of emissions during by passes of the thermal oxidisers.		Environmental Team Leader

PFIZER IRELAND PHARMACEUTICALS - LOUGHBEG API		
Environmental Management Programme		
		Revision No: 19
		Issue Date: 08/01/09
		Document Code: E 19

2.0 Objective	Measures for the replacement of substances / preparations classified under Directive 67/548/EEC.			
Rationale:	Specific requirements relating to the replacement of substances / preparations classified under Directive 67/548/EEC are contained in Pfizer Loughbeg's IPPC Licence (Reg. No. P 0010-04).			
No.	Target	Plan	Timescale	Responsibility
2.1 / 2008	To identify and replace (as far as possible by less harmful substances / preparation) the substances / preparations which fall under the requirements of Directive 67/548/EEC.	Review the information currently available through the site's REACH programme. Identify areas where further work is required. Dependant on the outcome of the review, a programme for replacement (where practicable) will be developed and implemented.		PIP REACH Co-Ordinator PIP REACH Co-Ordinator PIP REACH Co-Ordinator / Technical Services Team Leader

PFIZER IRELAND PHARMACEUTICALS - LOUGHBEG API		
Environmental Management Programme		
		Revision No: 19
		Issue Date: 08/01/09
		Document Code: E 19

3.0 Objective	Identification and reduction of fugitive emissions.			
Rationale:	Specific requirements relating to the reduction of fugitive emissions are contained in Pfizer Loughbeg's IPPC Licence (Reg. No. P 0010-04).			
No.	Target	Plan	Timescale	Responsibility
3.1 / 2008	To review the requirement for a catchment system to collect any leaks from flanges and valves of all over ground pipes used to transport material other than water.	Review the existing systems on site. Based on the outcome on the review, generate a report on the recommendations. Implement the recommendations as necessary.		Senior Project Engineer
3.2 / 2008	To identify and reduce fugitive emissions on site.	Engage a consultant to identify possible sources of fugitive emissions on site. Develop a programme for the identification and quantification of the fugitive emissions. Based on the recommendations of the report, develop a programme for the reduction of fugitive emissions on site.		Environmental Team Leader

PFIZER IRELAND PHARMACEUTICALS - LOUGHBEG API		
<i>Environmental Management Programme</i>		
		<i>Revision No: 19</i>
		<i>Issue Date: 08/01/09</i>
		<i>Document Code: E 19</i>

4.0 Objective	Energy use reduction and efficiency.			
No.	Target	Plan	Timescale	Responsibility
4.5 / 2008	To carry out an energy audit to comply with condition 7.1 of the IPPC Licence.	Carry out energy audits to encompass: - Refrigeration system review. - SEI HVAC review. - Electrical energy balance. - Thermal energy balance. - Water balance.	December 2009	PIP Energy Team Leader / Utilities Engineer

<i>PFIZER IRELAND PHARMACEUTICALS - LOUGHBEG API</i>		
<i>Environmental Management Programme</i>		
		<i>Revision No: 19</i>
		<i>Issue Date: 08/01/09</i>
		<i>Document Code: E 19</i>

5.0 Objective	Minimise water demand and the volume of trade effluent discharge			
Rationale:	The evaluation of environmental impacts has identified energy and water use as significant for the site. In addition, specific requirements relating to the identification of savings in energy and material usage are contained in Pfizer Loughbeg's IPPC Licence (Reg. No. P 0010-04).			
No.	Target	Plan	Timescale	Responsibility
In light of the site's sale Pfizer has are no plans to minimise water demand and the volume of trade effluent discharge prior to transfer of ownership.				

PFIZER IRELAND PHARMACEUTICALS - LOUGHBEG API		
<i>Environmental Management Programme</i>		
		<i>Revision No: 19</i>
		<i>Issue Date: 08/01/09</i>
		<i>Document Code: E 19</i>

6.0 Objective	Efficiency of the use of raw materials in all processes (having regard to the reduction in waste generated).			
Rationale:	Pfizer is committed to improving yields, elimination or reduction of wastes and / or the use of alternative less hazardous materials both at a Corporate and local level. This process is implemented at the earliest stage (by the Technical Services Department) of the process transfer to the plant. In the Production Department, process leaders have been appointed to specific processes in order to optimise yields, quality and raw material usage. The evaluation of environmental impacts has identified hazardous and non hazardous wastes as significant for the site. In addition, specific requirements relating to elimination / reduction of waste and the use of alternative less hazardous materials are contained in Pfizer Loughbeg's IPPC Licence (Reg. No. P 0010-04).			
No.	Target	Plan	Timescale	Responsibility
In light of the site's sale Pfizer has are no plans to improve the efficiency of the use of raw materials in all processes prior to transfer of ownership.				

APPENDIX 7:

Schedule of Objectives & Targets Environmental Management Programme 2009

Drug Product Plant (DP)

<i>PFIZER IRELAND PHARMACEUTICAL - LODP</i>		
<i>Environmental Management Plan</i>		<i>Page 137 of 13</i>
		<i>Revision No: 1</i>
		<i>Created: 25/02/2009</i>
		<i>Document Code: 2009</i>

INTRODUCTION

General

This Environmental Management Plan (EMP), incorporating objectives and targets, is prepared in accordance with the requirements of Condition 2 of Pfizer Ireland Pharmaceuticals Loughbeg's Integrated Pollution Prevention Control Licence (Number: P0010-04) and the International Standard ISO 14001. Cognisance has also been taken of the sections relating to the preparation of EMPs contained in the EPA's Guidance Note for Annual Environmental Reports.

Pfizer LODP has been issued with an IPPC Licence under the Environmental Protection Agency (EPA) Act 1992. This document sets out Pfizer's requirements for establishing environmental objectives and targets and an Environmental Management Programme and is designed to ensure that the company's performance is continually improving.

The objectives and targets and the EMP have been prepared with reference to the Register of Environmental Aspects and Impacts and in particular to the significant environmental impacts identified in the Register.

Any targets that have been carried over from the previous EMP will be indicated by 'CO'.

<i>PFIZER IRELAND PHARMACEUTICAL - LODP</i>		
<i>Environmental Management Plan</i>		<i>Page 138 of 13</i>
		<i>Revision No: 1</i>
		<i>Created: 25/02/2009</i>
		<i>Document Code: 2009</i>

This EMP addresses the **Environmental Aspects** listed BELOW:

1. **Waste Management**
2. **Waste Treatment / Abatement Systems**
3. **Environmental Compliance**
4. **Energy & Water usage**
5. **Community Outreach**

For each of these Aspects, the following information is outlined:

- Objective
- Rationale behind the objective
- Specific targets to achieve the objective
- Plan to achieve the targets
- Timescale
- Persons responsible

PFIZER IRELAND PHARMACEUTICAL - LODP

***Environmental
Management Plan***



Page 139 of 13

Revision No: 1

Created: 25/02/2009

Document Code: 2009

1.0 Objective	WASTE REDUCTION / RECYCLING Reduce, Recover, Reuse, Recycling of Waste Material Both On-Site and Off-Site			
Rationale:	The evaluation of environmental impacts has identified hazardous and non hazardous wastes as significant for the site. In addition, specific requirements relating to improvements in process control to reduce waste are contained in Pfizer Loughbeg's IPPC Licence (Reg. No. P0010-04).			
No.	Target	Plan	Timescale	Responsibility
1.1 (2006)	In conjunction with Veolia, investigate possibility of increasing levels of recycling.	In terms of better waste management and increasing recycling levels the following waste stream has been targeted - recycling cooking oil instead of incinerating it; <u>End of 2008 Status-</u> ENVA Oil sourced as an approved recycling outlet. ENVA will take cooking oil waste to its Portlaoise facility to bulk up with other oils and remove small amount of water. Then transported as non-haz waste to a facility in UK for use in turning into biodiesel.	June 2009 C/O	Pauline Digan / Ed Roycroft (Veolia)

PFIZER IRELAND PHARMACEUTICAL - LODP

***Environmental
Management Plan***



Page 140 of 13

Revision No: 1

Created: 25/02/2009

Document Code: 2009

		Current PIP IPPC licences (e.g. Condition 8.6 of P0010-04) does not allow for the consigning for recovery of green wastes without the prior approval of the EPA. A letter had been drafted for the EPA seeking approval but is awaiting agreement from the LOAPI site. LOAPI not willing to pursue this proposal. <u>2009 Plan</u> Post LOAPI sale and licence de-coupling this option will be pursued by LODP alone.		
1.2 (2009)	Decrease levels of non-hazardous wastes which are unnecessarily incinerated.	Initial analysis of these wastes has highlighted 2 waste streams – placebo tablet waste (without any active ingredient) & non-hazardous damaged raw material waste. With better segregation practices and input from Veolia these waste streams could be safely landfilled.	May 2009	Pauline Digan / Ed- Roycroft (Veolia)
1.3 (2008)	Together with LI, investigate the possibility of	<u>July 2008 Status:</u>		

PFIZER IRELAND PHARMACEUTICAL - LODP

***Environmental
Management Plan***



Page 141 of 13

Revision No: 1

Created: 25/02/2009

Document Code: 2009

1.4 (2008)	re-using fibre drums. ATC arrives from LI in fibre drums, once the drums are emptied of their contents they are dechimed and the fibreboard and metal chimbs are recycled – dechimbing is a time-consuming process. Initial indications are that this would result in 100 drums per week being re-used. Cost savings to be identified as part of investigation. Post Pfizer LOAPI sale, finalise with Veolia arrangements for the future collection of those waste streams currently included in the LOAPI waste streams (solvent waste, cooking oil, food waste & tabletting waste)	LI and LODP have mapped their processes. Meeting held on 31st July which agreed the process maps for both sites & highlighted some issues around labelling / stacking and storage of drums & updating SOPs. QRM to be scheduled for 21.08.08 at LODP plant. <u>Dec 2008 update</u> Some quality & safety issues remain to be resolved - to be carried forward into 2009 <u>2008 Status:</u> New waste streams flows have been documented – simply require final agreement	July 2009 C/O April 2009	Martin McSweeney / Niall Costigan (Warehouse) Pauline Digan / Ed Roycroft (Veolia)
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PFIZER IRELAND PHARMACEUTICAL - LODP		
<i>Environmental Management Plan</i>		<i>Page 142 of 13</i>
		<i>Revision No: 1</i>
		<i>Created: 25/02/2009</i>
		<i>Document Code: 2009</i>

2.0 Objective	Examine Alternatives for waste treatment / Abatement Systems			
Rationale:	In addition to being an environmental aspect, specific requirements relating to the improvement of treatment / abatement systems are contained in Pfizer Loughbeg's IPPC Licence (Reg. No. P0010-04).			
No.	Target	Plan	Timescale	Responsibility
2.1 (2005)	To investigate the feasibility of the biodegradation of waste LIPITOR	Engage a consultant to carry out a feasibility study; analysing the benefits. (Sign a confidentiality agreement). <u>2009 Update-</u> NOTE1 – Overall tableting waste volumes in '08 were 66tons vs. 69tons in '07 This target will remain on hold pending the outcome of Objective 1.2 (2009)	On Hold November 2009	Pauline Digan & Veolia / AVR

PFIZER IRELAND PHARMACEUTICAL - LODP		
<i>Environmental Management Plan</i>		<i>Page 143 of 13</i>
		<i>Revision No: 1</i>
		<i>Created: 25/02/2009</i>
		<i>Document Code: 2009</i>

3.0 Objective	ENVIRONMENTAL COMPLIANCE			
	Improve General Environmental Management			
Rationale:	With ISO 14001 & management tools it is the policy of LODP to promote the best environmental performance & practices, where practicable, ensuring they are continually improved. Also until April 2009 the Pfizer LOAPI and LODP plant hold a joint IPPC licence (P0010-04).			
No.	Target	Plan	Timescale	Responsibility
3.1 (2008)	The sale of the Pfizer LOAPI plant to Hovione will be completed on 06.04.09. The transfer of the IPPC licence from Pfizer to Hovione will also occur on that same date as will the LODP plant's exit from that IPPC licence. It has been agreed by Pfizer Corporate and Hovione (as part of the sale agreement) that the Hovione WWTP will continue to treat the LODP plant's waste water (process & foul) within the limits set in the IPPC licence.	<u>Status Update</u> Pfizer LODP plant engaged an environmental consultant (Tadg O'Flaherty – ARUP) to guide it through this site & licence de-coupling process. LOAPI EHS & LODP EHS reps met with EPA on 07.11.08 to discuss licensing issues post sale of LOAPI facility & de-coupling from LODP site. EPA advice is that IPPC licence will need to be amended (via a Technical Review / Amendment) to reflect new arrangements. NOTE – the LODP plant does not require an IPPC licence as it is not a "licensable" activity". New owners of LOAPI site will retain IPPC licence. On 23.12.08 LOAPI sent letter to EPA	April 2009 C/O	Pauline Digan / Tom Murphy

PFIZER IRELAND PHARMACEUTICAL - LODP

***Environmental
Management Plan***



Page 144 of 13

Revision No: 1

Created: 25/02/2009

Document Code: 2009

3.2	(as per their instructions) advising them of need to amend IPPC licence and requesting that this review and amendment take place ASAP. To facilitate this EPA review, the LODP Plant met with an official from Cork Co. Co. on 06.03.09 to advise them of revised site drawings; agreement to send all waste water to existing LOAPI WWTP for treatment under the IPPC licence limits; to confirm arrangement for storm-water drainage and to verify that all storm-water from the LODP plant will be uncontaminated. A letter confirming all these arrangements (with associated drainage drawings) was forwarded to Cork Co. Co. on that same day. NOTE – air flow monitoring and particulate sampling of air emission vents undertaken by ANV Technology (Jan. 09) on behalf of LODP plant. All compliant with IPPC licence limits and summary of results included in 2008 AER. Run energy & water awareness campaigns throughout the year (highlighting plant usage, progress on projects; cost-savings) Status Update: Energy Awareness Team has been re-formed with reps		
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PFIZER IRELAND PHARMACEUTICAL - LODP

***Environmental
Management Plan***



Page 145 of 13

Revision No: 1

Created: 25/02/2009

Document Code: 2009

(ongoing)	Improve Colleague Awareness of energy & water conservation	from Engineering, Facilities, Operations, Admin., QC & EHS. Meets fortnightly Energy awareness presentation (focusing on home and work) run for 2 weeks in March. Weekly energy awareness tips and alerts being e-mailed to the plant since mid-February 2009. Next area of focus is to take the data from the energy & water meters installed in 2008 and make it more available and understandable to plant colleagues. NOTE - Data from these meters is available to the Facilities team via E-Sight	December 2009 (ongoing)	Energy Awareness Team

PFIZER IRELAND PHARMACEUTICAL - LODP

***Environmental
Management Plan***



Page 146 of 13

Revision No: 1

Created: 25/02/2009

Document Code: 2009

4.0 Objective	ENERGY & WATER USAGE Reduced Energy & WATER usage			
Rationale:	The evaluation of environmental impacts has identified energy conservation as significant aspect for the site.			
No.	Target			
4.1 (2007)	Assess feasibility of shutting down GMP HVAC units outside production hours	Programme GMP HVAC out-stations to automatically shutdown units at weekend periods, and re-start on Monday morning prior to start of manufacture. Tech space HVAC units to be controlled by room temp setting rather than BMS time schedule.	Sept. 2009 C/O	Malachy Egan

PFIZER IRELAND PHARMACEUTICAL - LODP

***Environmental
Management Plan***



Page 147 of 13

Revision No: 1

Created: 25/02/2009

Document Code: 2009

2008 Status-

Initial weekend trial & impact study on GMP areas completed.
Quality risk assessment completed and data analysed.
HVAC units reprogrammed and shutdown at off peak times.

Potential savings estimated at 270k per annum.
Due to quality sensitivities and need to avoid any impact on
product, further analysis being done.
Report recd. from EIRDATA.
A meeting with EIRDATA, Facilities, Engineering and QA to be
scheduled to review HVAC type projects and to prioritise.

Jan '09 Update:
Projects completed for

AHU 909 (Phase 1 warehouse – 17.8k savings)
AHU 914 (Clean / IBC Storage – 14.8k savings)
AHU 911 (QC in set back mode – savings TBD)
Other GMP areas still not being shutdown – still QA issues to
resolve.

Reduce run temp (AHUs only)
Scope the feasibility – assessing impact on manufacturing

PFIZER IRELAND PHARMACEUTICAL - LODP

***Environmental
Management Plan***



Page 148 of 13

Revision No: 1

Created: 25/02/2009

Document Code: 2009

4.2 (2007)	Optimise HVAC system	equipment – Feasibility study <u>Jan 09. update:</u> Facilities to decide if this energy project to be prioritised for 2009	April C/O	Mick Murphy
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PFIZER IRELAND PHARMACEUTICAL - LODP

***Environmental
Management Plan***



Page 149 of 13

Revision No: 1

Created: 25/02/2009

Document Code: 2009

5.0 Objective	COMMUNITY To foster positive relations with the local community – particularly working together on environmental initiatives			
Rationale:	Supporting the Community is one of the Pfizer values			
No.	Target	Plan	Timescale	Responsibility
5.1 (ongoing)	To identify an environmental type initiative to progress with a local community	Identify environmental initiative Identify a local school / community group with which to work on an environmental initiative <u>Status:</u> Refer to Community Initiatives Summary on EHS Public folder	2009 (ongoing)	Pauline Digan / Anne Cleary

APPENDIX 8:

Solvent Management Plan (SMP) 2008

INTRODUCTION

The purpose of this is to provide a systematic approach to the management and tracking of priority pollutants on-site. The fundamental strategy is to understand how substances are used and consumed and to estimate releases to the environment from site operations. This understanding will, in turn aid in identifying opportunities for release reduction initiatives.

The SMP programme comprises of:

- A mass balance which tracks the fate of each substance, its overall usage, as well as routes of disposal, including discharges to air, water, incineration off-site, landfill, recovery, recycling and loss in product. This is completed by site EH&S personal with knowledge of the processes and operations generating the releases. Where specialized understanding is required expertise is sought from suitably qualified professionals both internally and externally on a consultancy basis.
- Completion of the Solvent Management Plan (SMP) tracking form

Overview of the Mass Balance Process

A complete mass balance is carried out on each of these materials. The mass balance considers the Total Use (Inputs) for each of the above substances based on inventory records. Total Loss is calculated by addition of individual Component Losses (outputs).

System boundaries (black boxes) were defined in order to allow identification of all streams entering and leaving the mass balance system. This data has been presented in visual form in Figure 1.

ASSUMPTIONS

- Available and measurable mass balancing data is accurate.
- Spot sampling results from any environment (air, water etc) are representative.
- Estimation procedures are accurate.

REPORT SUMMARY

In accordance with the site IPC Licence, a Pollution Release Transfer Register was carried out. The methodologies for the solvent tracking and calculations are detailed in the Mass Balance section of the report.

Solvent Accountability:

Solvent	Annual Usage (kgs) 2008	% Unaccounted 2008	% Unaccounted 2007
Solvent	10,777,292	3.0	-2..2

Solvent Total Loss figure was 3.0% of the total solvent use value. 41% of the total solvent usage is sent off-site for recovery /reuse. 51% of the total solvent usage is sent for off-site incineration with/without heat recovery.

A comparison of the mass balance data for 1996 - 2008 is detailed in the following table:

Year	List	Solvent	Gross Usage (kgs)	% Unaccounted
1996	I	Ethylene Dichloride	29665	79% recovery rate
	II	Toluene	1203400	1%
		Dichloromethane	565303	16.5%
1997	I	No Black List Substances used		N/A
	II	Toluene	1474291	2.7%
		Dichloromethane	507432	13.6%
		Xylene	2518	52.7%
1998	I	No Black List Substances used	None	
	II	Toluene	1341680	7.5%
		Dichloromethane	454110	6.7%
	----	Acetone / IPA	794150	5.0%
1999	I	No Black List Substances	None	

	II	used Toluene	1,530,000	4.6%
	----	Dichloromethane	566,000	1.3%
		MTBE	656,000	3.7%
2000	I	No Black List Substances used	None	
	II	List II substances not tracked as PRTR agreement with Agency IPA	1055141	0.4%
		Acetone/MeOH	2136951	0.3%
2001	I	No Black List Substances used		
	II	Toluene	4,174,492	+4.6%
		MTBE	1,966,635	2.6%
		THF	979,737	+9.4%
2002		Non Methane VOCs	15,766,885	1.3%
		MDC	280,076	5.7%
		Ammonia	32,153	1.1%
		Nickel	16,432	0.8%
2003		Non Methane VOCs	14,089,076	+5.6%
		MDC	247,243	-8.6%
		Ammonia	26,106	+2.5%
		Nickel	17,153	-9.8%
2004		Non Methane VOCs	13,160,387	-8.0%
		MDC	213,903	-12.2%
		Ammonia	12,212	+11.2%
		Nickel	11,712	-4.2%
2005		Non Methane VOCs	13,244,185	+0.1%
		MDC	164,442	-9.0%
		Ammonia	12,650	+0.8%
		Nickel	16,107	-12.9%
2006		Non Methane VOCs	12,70,20	+2.3%
		MDC	234,761	+1.1%
		Ammonia	15,024	+0.3%
		Nickel	14,048	-12.5%
2007		Solvent	11009254	-2.2%
2008		Solvent	10,777,292	+3.0%

MASS BALANCE PROCESS

The following is the approach adopted in carrying out a mass Balance for the SMP:

- The Total Use for each of the substances being included in the SMP is determined.

Total Use is defined as:

Beginning Inventory
+Amount Purchased

$$\begin{aligned}
 &+ \text{Amount Generated} \\
 &- \text{Ending Inventory} \\
 &= \text{Total Use}
 \end{aligned}$$

- The individual Component Losses for each substance are estimated using measurements, engineering calculation and process knowledge.
- The sum of the component losses is the Total Loss.

The following outputs are not generated on site:

- O7 Organic solvents, or organic solvents contained in preparation, which are sold or are intended to be sold as a commercially valuable product.
- O8 Organic solvents contained in preparations recovered for reuse but not as input into the process, as long as not counted under O7.
- O9 Organic solvent released in other ways.

The following Component Losses are considered for the SMP:

- **Loss to Water: (O2)**
The amount of substance or constituent entering a receiving body of water including WWTP and surface water discharges.
- **Loss to Air: (O1)**
The amount of substance or constituent escaping to the atmosphere as a result of facility operations. These include direct losses from air abatement systems as well as losses from indirect sources such as tank breathing and working losses and fugitive emissions.
- **Product: (O3)**
The amount of substance or constituent that is incorporated into the product or transformed by chemical reaction.
- **Destroyed Thermally On-Site, Biodegradation& Consumed : (05)**
Destroyed Thermally On-Site
The amount of substance or constituent destroyed on site by a thermal destruction process, e.g. Durr and Thermatrix units.

Biodegradation:

The amount of substance or constituent destroyed through biodegradation.

Consumed :

This includes solvents consumed in the chemical processes on site

- **Incineration & Loss to Land Off-Site: (O6)**
- **Incineration:**
The amount of substance or constituent destroyed by incineration off-site.
- **Loss to Land Off-Site:**
The amount of substance or constituent lost through sludge disposal off-site.
- **Recycle/Recovery: (T2)**
The amount of the substance or constituent sent off site for recycling or recovery.

METHODOLOGY

- **Loss to Air: (O1)**
Losses to air are made up of point losses from site emission points, minors from hydrogenation vents and truck unloading vents, tank farm losses including breathing losses and cooling tower losses from contamination of the site cooling water system. Losses are based on monitoring analysis, Waters 9 modelling and engineering estimates.
- **Loss to Water: (O2)**
Losses to water are from WWTP discharges via the Country Sump and surface water discharges via the North Fire Pond. Waters 9 modelling shows THF to be the only Non-Chlorinated VOC to have an exit value from the WWTP. This value is calculated based on VOC loading into the WWTP based on analytical data from process waste streams. Losses from the surface water discharge are estimated on measured TOC values.
- **Product: (O3)**
This is calculated using process chemistry and analytical data on finished product.
- **Biodegradation: (O5)**
This is the quantity of VOC lost through the biodegradation in the WWTP and North Fire Pond. The figure for biodegradation in the WWTP is based on Waters 9 modelling
- **Destroyed Thermally On-Site: (O5)**
This is calculated on air analysis results pre and post abatement systems.
- **Consumed : (O5)**
This includes solvents consumed in the chemical processes on site
- **Destroyed Thermally Off-Site: (O6)**
This figure is the quantity of VOC sent off site for incineration. This is calculated based on waste tanker weights and waste tanker analytical data.
- **Loss to Land Off-Site: (O6)**
Losses to land of site are as a result VOC's lost as a result of sludge from WWTP being disposed off-site. These are calculated using analytical data on sludge leaving the site.
- **Recycle/Recovery: (T2)**
This is calculated based on waste tanker weights and waste tanker analytical data.

FACILITY IDENTIFICATION												
Facility Name		Pfizer Loughbeg										
IPPC Register No.		P0010-04										
National Grid Reference		178,855.2 63,239.2 (Chemical Building 1)										
Reporting Period		Jan – Dec 2008										
Production Units/Amount		Active Pharmaceuticals Ingredients										
Employee No.		300 approx										
POLLUTANT SUMMARY												
Pollutant	Unaccounted %.	Input (kg)	Component Loss (Outputs)	Kgs								
				Water (O2)	Air (O1)	Land (O6)	On-Site Thermal (O5)	Biodegradation (O5)	Product (O3)	Incineration (O6)	Recovery (T2)	Consumed (O5)
Solvent	+3.2	10,777,292	11,102,465	695	21704	55	199,544	506,754	73	5,562,867	4,518,986	291787
				M	C	C	M	E	M	C	E	E

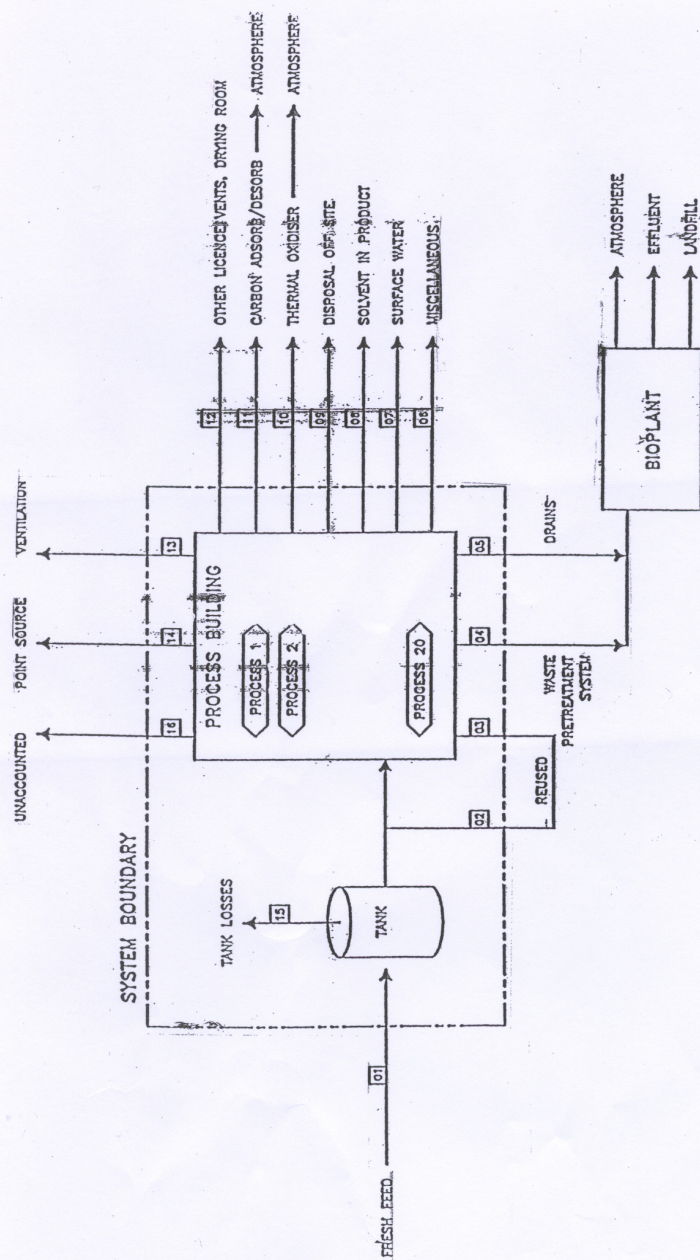
MOM (Method of Measurement)

Code: E Estimate

C Calculate M Direct Measurement

Figure 1

Systems Boundaries



APPENDIX 9:

Noise Survey Report 2008

ENVIRONMENTAL NOISE SURVEY

**Pfizer Ireland Pharmaceuticals,
Loughbeg**

August 2008

Environmental Noise Survey - 2008

Pfizer Ireland Pharmaceuticals, Loughbeg

Summary

Date	Location	Specific Noise attributable to Pfizer Loughbeg, dB(A)	
		<i>Day</i>	<i>Night</i>
06/08/08	Beach (D)	48	46
	Cliff (300m West)	50	45

IPPC Licence P0010-04 sets noise limits of 55 dB(A) during daytime and 47 dB(A) at nighttime at the beach position. These limits were complied with.

The licence sets noise limits of 55 dB(A) during daytime and 45 dB(A) at nighttime at the nearest noise sensitive location, the residence at the “cliff” west of Pfizer. The daytime and nighttime limit was complied with at this position.

Introduction

ANV Technology was commissioned to carry out an environmental noise survey, to determine compliance with the noise limits in IPPC licence P0010-04.

Measurements were made on the 6th August 2008 at two positions: the “beach” position D, and the nearest noise sensitive residence, referred to as “the cliff”, at Loughbeg, located 300m west of the plant.

The survey methodology followed the Environmental Protection Agency (EPA) “Environmental Noise Survey Guidance Document” (2003), EPA “Guidance Note for Noise in Relation to Scheduled Activities” (2006), and ISO 1996 “Description and measurement of environmental noise”.

The measurement duration at each location was 15 minutes during both daytime and night-time. A summary of noise terminology is given in Appendix A.

Survey Details

Location

Measurements were made at the reference position D specified in the IPPC licence P0010-04. This position is on the beach to the north east of the plant, close to where the access path enters the beach. Measurements have been made at this position since 1999.

Measurements were also taken at the nearest noise sensitive residence at the 'cliff' position, approximately 300m from the west boundary of the Pfizer site adjacent to a private dwelling on the shore of Loughbeg. This position was first defined as an IPPC noise sensitive location in 2008.

Weather:

Date	Day:	Night:
6 th August	20 °C, Moderate SW	10 °C, Calm to light SW

Instrumentation

Manufacturer	Instrument	Calibrated by	Calibration reference	Last Laboratory Calibration
Svantek	SLM 947 (Type 1) serial no. 5283	AV Calibration	0806337	9/06/2008
Castle	Calibrator GA 607 serial no. 040520	AV Calibration	No. 0708323	31/8/07

Personnel

Alan Hanley BSc, AMIOA, of ANV Technology Ltd.

Results

The measured noise levels are presented in table 1.

Beach Position D

Daytime

During daytime, there was little wave noise as the tide was out, some seagull noise, and a low level steady plant noise audible from Pfizer. The best estimate of specific noise emissions from the site is obtained from the L_{A90} parameter, which had a mean value of 48 dB(A).

Nighttime

During nighttime, there was constant water lapping noise with steady low-level noise from the Pfizer site audible in lulls.. The best estimate of specific noise emissions from the site is obtained from the L_{A90} parameter, which was 46 dB(A).

Cliff Position

Daytime

There was low level industrial noise audible predominantly from GSK, with low level plant noise from Pfizer also audible, but of lower magnitude. Intermittent sandblasting noise was clearly audible from GSK at the Cliff position. There was also noise from seagulls and rustling hedges in the breeze. The total industrial noise component is best represented by the L_{A90} parameter, which was 50 dB(A). The specific noise from the Pfizer site was less than this, i.e. <50 dB(A).

Nighttime

During nighttime, there was low level industrial noise from both Pfizer and from GSK, of approximately equal magnitude. The total industrial noise component is best represented by the L_{A90} parameter, which was 48 dB(A). The specific noise from the Pfizer site was less than this, i.e. <48 dB(A).

Assuming the plant noise from both GSK and Pfizer were of approximately equal magnitude, and taking into consideration the total steady plant noise measured was 48 dB(A), the component of the total noise due to Pfizer alone is calculated to be 3 dB less, i.e. 45 dB(A).

Compliance with IPPC Limits

Beach Position:

The IPPC licence P0010-04 specifies a daytime limit of 55 dB(A), and a nighttime limit of 47 dB(A) at the beach position D.

The noise emissions from the Pfizer Loughbeg site complied with these limits during both daytime and nighttime.

Cliff Position:

The IPPC licence P0010-04 specifies a daytime limit of 55 dB(A), and a nighttime limit of 45 dB(A) at the nearest noise sensitive location.

The noise emissions from the Pfizer Loughbeg site complied with the daytime limit.

During the nighttime survey the industrial noise audible at the Cliff position was due to a combination of Pfizer noise and GSK noise. The total industrial noise component detected at this position during the nighttime survey was 48 dB(A). The noise attributable to Pfizer was determined to be 45 dB(A), and in compliance with the limit.

Comparison with previous survey

Measurements have been made at the beach position since 1999, and a summary of nighttime specific noise levels is presented in Table 2. There has been no detectable systematic change in plant emissions at the Beach position in recent years.

Slight inconsistencies can be explained by two factors: differing meteorological conditions, and variable industrial noise emissions.

Table 1: Results of Noise Survey 25th -26th August 2008. Pfizer Ireland Pharmaceuticals, Loughbeg.

Day/Night	Location	Time	L _{Aeq}	L _{A90}	L _{A50}	L _{A10}	Specific Industrial Noise	Comment
Daytime	Beach	14:00	50	48	49	52	48	Low level plant noise from Pfizer audible, water lapping, seagulls.
		15:10	52	49	50	54	49	Low level plant noise from Pfizer audible, water lapping, seagulls.
		16:05	49	49	47	51	49	Low level plant noise from Pfizer audible, water lapping, seagulls.
		Mean	51	48	49	52	48	
	Cliff	15:40	53	50	52	55	50	Steady low level plant noise from GSK predominantly (loud sandblasting intermittently) plus low level plant noise from Pfizer.
		16:35	53	48	52	56	48	Steady low level plant noise from GSK predominantly (loud sandblasting intermittently) plus low level plant noise from Pfizer.
		14:40	52	50	52	55	50	Steady low level plant noise from GSK predominantly plus low level plant noise from Pfizer.
		Mean	53	50	52	55	50	
Nighttime	Beach	23:10	56	46	54	61	46	Waves breaking on shore, low level plant noise from Pfizer audible in lulls.
	Cliff	23:40	48	48	47	49	48 total 45 Pfizer	Low level plant noise from GSK and Pfizer audible, Water breaking on shore, gulls. Of the total industrial noise component of 48 dB(A), the contribution from Pfizer was determined to be approximately 45 dB(A)

Table 2: Comparison of measured levels, 1999-2008. Specific Nighttime Noise Levels dB(A)										
Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Specific Noise Level on Beach	48	45-51	44-48	46	45	46-47	47	45	43-45	46

APPENDIX A - TERMINOLOGY

dB(A)	a logarithmic noise scale, termed the decibel. The "A" indicates that a frequency weighting has been applied to take account of the variation in the sensitivity of the human ear as a function of frequency.
L_{Aeq}	the average noise level during the measurement period which includes all noise events. The L _{Aeq} value has been found to correlate well with human tolerance of noise, and is the value normally used in setting and monitoring industrial noise limits. Measurements in this report were 15 minutes duration. For relatively steady noise sources, the L _{Aeq} measured over different reference periods is expected to be the same, i.e. $L_{Aeq,15m} = L_{Aeq,30m} = L_{Aeq,1hr}$.
L_{A50}	the noise level exceeded for 50% of the time. This may be used for estimation of specific noise, when there is slowly varying plant noise, subject to intermittent interference from other noise sources
L_{A90}	the noise level exceeded for 90% of the time. It is generally taken as being representative of the steady background noise at a location. It tends to exclude short events such as cars passing, dogs barking, aircraft flyovers etc.
L_{A10}	the noise level exceeded for 10% of the time. It is a measure of the higher noise levels present in the ambient noise.
L_{AS}, L_{AF}	the noise level measured with the instruments response time set to standardised "Slow" or "Fast" response.
Specific Noise	the noise level which can be ascribed to a specific source. For a constant industrial source, with intermittent interference this is often described by the L _{A90} . Where there is constant interference, such as noise from waves, the specific noise is typically less than the measured L _{A90} .

APPENDIX 10:

Sludge Analysis Report 2008

De-watered Sludge disposal – Quarterly Analytical Reports 2008.

There is no sludge analysis for Quarter 1 , 2008

De-watered Sludge disposal – Quarterly Analytical Reports 2008.

SUMMARY REPORT OF HEAVY METALS IN SLUDGE 2008			
	Aver Conc (ppm)	Sludge Tonnes	(Kgs)
Nickel	32	1442.75	46
Chromium	5.3	1442.75	8
Copper	5.27	1442.75	8
Lead	<1	1442.75	<1
Zinc	37.93	1442.75	55

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Date	Parameter	Result	Methodology
22/06/08	Loss of Ignition	97.9%	FT1171
	Loss on Drying	87.05%	FT1731
		Mg/Kg	
	Cadmium	<1	FT 1481
	Chromium	1	FT 0531
	Copper	3.6	FT 0171
	Lead	<1	FT 1481
	Nickel	6	FT 1481
	Silver	2	Atomic Absorption
	Zinc	5.5	FT 0171
	Arsenic	0.121	Subcontracted
	Mercury	0.004	Subcontracted
	Potassium	1070	FT 0221
	Tin	10	FT 0691
	Chlorobenzene	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	Isopropylbenzene	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	N-Propylbenzene	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	O-Xylene	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	p/m-Xylene	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	Sec-Butylbenzene	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	Tert-Butylbenzene	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	1,2-Dichlorobenzene	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	1,3-Dichlorobenzene	<0.72	Purge and trap GCMS(GP-CHEM-2022)

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			2022)
	1,4-Dichlorobenzene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	2-Chlorotoluene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	4-Chlorotoluene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	Benzene	3.39	Purge and trap GCMS(GP-CHEM- 2022)
	Toluene	6.36	Purge and trap GCMS(GP-CHEM- 2022)
	Bromobenzene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	Ethylbenzene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	Naphthalene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	N-Butylbenzene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	P-Isopropyltoluene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	Styrene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,2,3-Trichlorobenzene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,2,4-Trichlorobenzene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,2,4-Trimethybenzene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,3,5-Trimethybenzene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)

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	Cis 1,3,Dichloropropene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	Hexachlorobutadiene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	Trans 1,3- Dichloropropene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	Trichloroethylene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,1-Dichloropropene	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,1,1,2- Tetrachloroethane	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,1,2-Trichloroethane	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,1,2,2- Tetrachloroethane	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,2-Dibromo-3- chloropropane	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,2-Dibromoethane	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,2-Dichloroethane	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,2-Dichloropropane	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,2,3-Trichloropropane	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	1,3-Dichloropropane	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	Bromochloroethane	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	Bromoform	<0.72	Purge and trap

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			GCMS(GP-CHEM-2022)
	Carbon Tetrachloride	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	Chloroform	24.12	Purge and trap GCMS(GP-CHEM-2022)
	Dibromomethane	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	Tetrachloroethane	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	1,1-Dichloroethane	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	1,1,1-Trichloroethane	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	2,2-Dichloropropane	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	Dichloromethane	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	Bromodichloromethane	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	Cis-1,2-Dichloroethylene	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	Dibromochloromethane	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	Trans-1,2-Dichloroethylene	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	1,1-Dichloroethylene	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	Bromomethane	<0.72	Purge and trap GCMS(GP-CHEM-2022)
	Chloroethane	<0.72	Purge and trap GCMS(GP-CHEM-2022)

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	Chloromethane	<0.72	2022) Purge and trap GCMS(GP-CHEM- 2022)
	Dichlorodifluormethane	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	Trichloroflourmethane	<0.72	Purge and trap GCMS(GP-CHEM- 2022)
	Vinyl Chloride	<0.72	Purge and trap GCMS(GP-CHEM- 2022)

Date	Parameter	Result	Methodology
30-9-2008	Loss of Ignition	98.1%	FT1171
	Loss on Drying	86.7%	FT1731
		Mg/Kg	
	Cadmium	<1	FT 1481
	Chromium	2	FT 0531
	Copper	4.3	FT 0171
	Lead	<1	FT 1481
	Nickel	7	FT 1481
	Silver	<1	Atomic Absorption
	Zinc	14	FT 0171
	Arsenic	0.132	Subcontracted
	Mercury	0.008	Subcontracted
	Potassium	873	FT 0221
	Tin	9	FT 0691
	Chlorobenzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Isopropylbenzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	N-Propylbenzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	O-Xylene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	p/m-Xylene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Sec-Butylbenzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Tert-Butylbenzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,2-Dichlorobenzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,3-Dichlorobenzene	<0.73	Purge and trap Purge and trap GCMS(GP-

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			CHEM-2022)GCMS(GP-CHEM-2022)
	1,4-Dichlorobenzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	2-Chlorotoluene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	4-Chlorotoluene	<0.55	Purge and trap GCMS(GP-CHEM-2022)
	Benzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Toluene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Bromobenzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Ethylbenzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Naphthalene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	N-Butylbenzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	P-Isopropyltoluene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Styrene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,2,3-Trichlorobenzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,2,4-Trichlorobenzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,2,4-Trimethybenzene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,3,5-Trimethybenzene	<0.73	Purge and trap

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			GCMS(GP-CHEM-Purge and trap GCMS 2022)
	Cis 1,3,Dichloropropene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Hexachlorobutadiene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Trans 1,3-Dichloropropene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Trichloroethylene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,1-Dichloropropene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,1,1,2-Tetrachloroethane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,1,2-Trichloroethane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,1,2,2-Tetrachloroethane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,2-Dibromo-3-chloropropane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,2-Dibromoethane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,2-Dichloroethane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,2-Dichloropropane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,2,3-Trichloropropane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,3-Dichloropropane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Bromochloroethane	<0.73	Purge and trap

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			GCMS(GP-CHEM-2022)
	Bromoform	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Carbon Tetrachloride	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Chloroform	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Dibromomethane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Tetrachloroethane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,1-Dichloroethane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,1,1-Trichloroethane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	2,2-Dichloropropane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Dichloromethane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Bromodichloromethane	20.3	Purge and trap GCMS(GP-CHEM-2022)
	Cis-1,2-Dichloroethylene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Dibromochloromethane	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Trans-1,2-Dichloroethylene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	1,1-Dichloroethylene	<0.73	Purge and trap GCMS(GP-CHEM-2022)
	Bromomethane	<0.73	Purge and trap GCMS(GP-CHEM-2022)

			2022)
	Chloroethane	<0.73	Purge and trap GCMS(GP-CHEM- 2022)
	Chloromethane	<0.73	Purge and trap GCMS(GP-CHEM- 2022)
	Dichlorodifluormethane	<0.73	Purge and trap GCMS(GP-CHEM- 2022)
	Trichlorofluoromethane	<0.73	Purge and trap GCMS(GP-CHEM- 2022)
	Vinyl Chloride	<0.73	Purge and trap GCMS(GP-CHEM- 2022)

Date	Parameter	Result	Methodology
17-12-2008	Loss of Ignition	96.7%	FT1171
	Loss on Drying	83.9%	FT1731
		Mg/Kg	Atomic Absorption
	Cadmium	<1	FT 1481
	Chromium	13	FT 0531
	Copper	7.9	FT 0171
	Lead	1	FT 1481
	Nickel	83	FT 1481
	Silver	1	Atomic Absorption
	Zinc	94.3	FT 0171
	Arsenic	0.261	Subcontracted
	Mercury	0.012	Subcontracted
	Potassium	911	FT 0221
	Tin	9.8	FT 0691
	Chlorobenzene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Isopropylbenzene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	N-Propylbenzene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	O-Xylene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	p/m-Xylene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Sec-Butylbenzene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Tert-Butylbenzene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,2-Dichlorobenzene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,3-Dichlorobenzene	<0.64	Purge and trap GCMS(GP-CHEM-2022)

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	1,4-Dichlorobenzene	<0.64	2022) Purge and trap GCMS(GP-CHEM- 2022)
	2-Chlorotoluene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	4-Chlorotoluene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	Benzene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	Toluene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	Bromobenzene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	Ethylbenzene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	Naphthalene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	N-Butylbenzene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	P-Isopropyltoluene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	Styrene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	1,2,3-Trichlorobenzene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	1,2,4-Trichlorobenzene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	1,2,4-Trimethylbenzene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	1,3,5-Trimethylbenzene	<0.64	Purge and trap GCMS(GP-CHEM- 2022)

	Cis 1,3-Dichloropropene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Hexachlorobutadiene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Trans 1,3-Dichloropropene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Trichloroethylene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,1-Dichloropropene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,1,1,2-Tetrachloroethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,1,2-Trichloroethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,1,2,2-Tetrachloroethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,2-Dibromo-3-chloropropane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,2-Dibromoethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,2-Dichloroethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,2-Dichloropropane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,2,3-Trichloropropane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,3-Dichloropropane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Bromochloroethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Bromoform	<0.64	Purge and trap

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			GCMS(GP-CHEM-2022)
	Carbon Tetrachloride	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Chloroform	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Dibromomethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Tetrachloroethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,1-Dichloroethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,1,1-Trichloroethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	2,2-Dichloropropane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Dichloromethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Bromodichloromethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Cis-1,2-Dichloroethylene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Dibromochloromethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Trans-1,2-Dichloroethylene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	1,1-Dichloroethylene	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Bromomethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)
	Chloroethane	<0.64	Purge and trap GCMS(GP-CHEM-2022)

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	Chloromethane	<0.64	2022) Purge and trap GCMS(GP-CHEM- 2022)
	Dichlorodifluormethane	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	Trichlorofluoromethane	<0.64	Purge and trap GCMS(GP-CHEM- 2022)
	Vinyl Chloride	<0.64	Purge and trap GCMS(GP-CHEM- 2022)

Environmental Specialist: A. Ashe

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APPENDIX 11:

Groundwater Monitoring Data Assessment

Pfizer Loughbeg API Plant Groundwater Data Summary 2008

24 March 2009 Final
Issue No 1 49341706 / CKRP0001

Pfizer Ireland Pharmaceuticals\49341706\Pfizer Loughbeg GW Summary 08\CKOT0001\FO\FO



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Groundwater Data Summary 2008
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CONTENTS

Section Page No

1. INTRODUCTION.....	1
1.1 Project Objective and Scope.....	1
2. SITE SETTING.....	2
1. 2.1 Site Description	2
2. 2.2 Physical Setting.....	2
1. 3. GROUNDWATER EXTRACTION AND MONITORING	4
2. 4. DATA COLLATION	5
1. 4.1 Data Sources.....	5
2. 4.2 2008 Data Presentation and Discussion	5
1. 5. SUMMARY	9
2. 6. LIMITATIONS	10
3. 7. COPYRIGHT	10
FIGURES APPENDIX A -2008 IPPC GROUNDWATER MONITORING DATA APPENDIX B - MONTHLY SAMPLING RESULTS FOR CHLOROBENZENE FOR ON	

**SITE WELL EW4 TO DECEMBER 2008 APPENDIX C -
COMPLETE MONTHLY SAMPLING RESULTS FOR VOLATILE
ORGANIC COMPOUNDS FOR ON-SITE WELL EW4 IN 2008**



1. INTRODUCTION

URS Ireland Ltd. (URS) is pleased to present Pfizer Ireland Pharmaceuticals (Pfizer) with a summary of the groundwater data for 2008 from the Pfizer Global Manufacturing (PGM) Active Pharmaceutical Ingredient (API) facility, located at Loughbeg, Ringaskiddy, Co. Cork, Ireland (hereafter referred to as “the Site” or subject facility), as requested by Ms. Aileen Ashe of the Site’s HSE Department in February 2009.

The site operates under an Integrated Prevention Pollution Control (IPPC) licence granted by the Environmental Protection Agency (Register Number P0010-01 (formerly 299)).

Project Objective and Scope

The objectives of the groundwater summary are as follows:

- To assess groundwater quality in monitoring wells, analysed as part of the biannual groundwater monitoring programme required by the site’s IPPC License based on monitoring data for 2008 provided by the Site; and
- To present historical groundwater monitoring data and present temporal trends for key contaminants (i.e. those historically present above relevant assessment criteria).



2. SITE SETTING

2.1 Site Description

The Site is located on the Loughbeg peninsula, approximately 1.5 km south of Ringaskiddy town, in the southwest of the Cork Harbour (see Figure 1).

There are no residential housing developments, schools or medical facilities in the immediate vicinity of the site. The nearest residential development is at Ringaskiddy village.

2.2 Physical Setting

The 1:50,000 scale topographic map of the area (Discovery Series Map No. 87, Ordnance Survey of Ireland) shows the Site located on a small headland or peninsula projecting south into Loughbeg, an inlet on the western side of the lower Cork Harbour area.

The Site is at an elevation of between 5 and 15 metres (m) above the national mean sea level datum, termed Ordnance Datum (Malin) or OD. The immediate vicinity of the Site is tidal water to the south and east and generally flat-lying intertidal mudflats in Loughbeg to the west.

There are no surface watercourses on the Site and no other surface watercourses or

water bodies mapped within 1 kilometre (km) of the Site.

Immediately to the north of the Site is the current Pfizer car parking area, a minor road leading north to the village of Ringaskiddy (located approximately 1 km from the Site), a disused temporary car park and farmland.

2.2.1 Geology and Hydrogeology

Based on the Geologic Map (Geological Survey of Ireland, South Cork – sheet 25, scale of 1:100,000) the subsoil geology of the area consists of thin quaternary till deposits of glacial origin, characterised by gravels and sands derived from the local Devonian sandstones (from GSI groundwater website – Teagasc South Western River Basin District (RBD) Subsoils mapping).

These subsoils overlie fractured limestone bedrock at the Site, which consists of two distinct formations:

- The massive, unbedded fine-grained limestones (mud mound limestones) of the Waulsortian Limestone Formation of Lower Carboniferous age, which are found beneath the southern half of the Site and also occur to the north of the Site; and
- The mixed cherty calcareous mudstones and limestones of the Loughbeg Formation, which underlie the northern part of the Site. Stratigraphically, the Loughbeg Formation overlies (i.e. is younger than) the Waulsortian Limestone Formation.



2.2.1.1 Subsoils

Site-specific exploratory information (i.e. logs from water well and monitoring well borings in 1990/1991 and summarised by KT Cullen & Company in 1994) showed 3 to 7 m of sandy clay beneath most of the Site.

Later trial pit excavation in 1999 by Dames & Moore indicated unconsolidated subsoils

1.5 to 3.5 m thick beneath the main production areas, with thicker sand and gravel deposits in excess of 4 m thick beneath the car parking areas in the north of the Site, possibly indicating a buried channel feature and suggesting that the Loughbeg peninsula may once have been an island.

2.2.1.2 Bedrock

The thin subsoils are underlain by limestone bedrock across the Site's footprint. The upper part of the limestone is heavily fractured and weathered (termed 'epikarst') to a depth of approximately 12 m below ground level (m bgl) and is water-bearing (KT Cullen, 1994). Previous wells were drilled in the limestone to a maximum depth of 50 m bgl, however little groundwater ingress was noted below 12 m bgl (KT Cullen, 1994).

Geophysical studies showed an east-west trending area of low resistivity, interpreted as a bedrock fault containing saline water, beneath the Site, the ends of which corresponded with the locations of springs on the foreshore to the east and west of the Site (KT Cullen, 1994).

Based on direct measurements conducted on-site, the water table is located between 1 and 2 m above Ordnance Datum at the Site or approximately 8.5 m below

grade, which is consistent with its low-lying, coastal setting.

Groundwater flow from the headland was inferred to be dominantly shallow flow via the epikarst towards the harbour in an approximately radial pattern, though with some concentration of groundwater flows toward the foreshore springs, as noted above.

Groundwater flow beneath the peninsula was considered to be essentially isolated from the mainland to the north by thicker, more permeable quaternary sand and gravel sediments beneath the neck of land joining the Site to the mainland.

This epikarst aquifer is not considered to be a potential source of potable water as there is evidence of saline intrusion in all of the more permeable monitoring wells at the Site and little evidence of groundwater ingress in the deeper, less fractured limestone.



3. GROUNDWATER EXTRACTION AND MONITORING

Groundwater monitoring results are forwarded to the EPA as part of the Site's Annual Environmental Report.

Currently, groundwater is extracted from two active hydraulic containment wells (EW2 and EW4). Groundwater is sampled biannually from MW2, EW2 and EW4 along the eastern side of the site and MW5S on the western side of the site, as required by the Site's IPPC licence. Groundwater samples are analysed for Total Petroleum Hydrocarbons (TPH), Volatile Organic Compounds (VOCs), nitrate, total ammonia, major ions, heavy metals and Chemical Oxygen Demand (COD).

Extracted groundwater from wells EW2 and EW4 is treated in the site WWTP.

Well MW2 was decommissioned and replaced by a new well, named MW2S, (approximately 10 m to the southwest) by Dames & Moore in 1999, due to construction of a new firewater retention pond for the Site in the area occupied by the old MW2.

Extraction well EW4 became heavily encrusted, was decommissioned in 2001 and was replaced with a well of equivalent depth and construction named EW4S, within 5 m of the original location

For convenience, only the terms MW2 and EW4 will be used in this report.



1. **4. DATA COLLATION**
2. **4.1 Data Sources**

Assessment on the groundwater quality at the Site commenced in 1991 in response to a solvent spillage and staining on the western foreshore.

Groundwater monitoring data was collected annually from 1991 to 1993, biannually during 1994, and quarterly from 10 June 1995 to 23 March 1997.

- . • For wells MW1S to MW6S the earliest records are from 12 August 1991.
- . • For wells EW1 to EW7 the earliest records are from 26 April 1992.
- . • For wells MW7S, MW8S, EW8 and EW9 9 the earliest records are from 10 June 1995.

The monitoring activity was reduced in 1997 due to an improvement on groundwater data by agreement with the Agency.

From 22 June 1998 to 09 October 2008 biannual groundwater sampling has been

- carried out by Pfizer staff at Loughbeg from the following four wells;
- groundwater-monitoring wells (MW2 and MW5)
 - groundwater extraction wells (EW2 and EW4).

4.2 2008 Data Presentation and Discussion

Data tables giving the 2008 monitoring results are given as Appendix A.

Groundwater results for the site are best summarised by sub-dividing the site into two areas, as follows:

- Eastern Groundwater Area (MW-2, EW-2 and EW-4).
- Western Groundwater Area (MW-5).

4.2.1 Eastern Groundwater Area

4.2.1.1 Well MW2

Chlorobenzene (185 parts per billion (ppb)) was the only VOC detected above the DIV (180 ppb) in 2008 (October) in groundwater from MW2.

The biannual testing for MW2 in 2008 has highlighted that residual levels of organic solvents (with the exception of chlorobenzene) and heavy metals in the groundwater continue to be well below the Dutch Intervention Values (DIVs), indicating that this well is relatively uncontaminated.



4.2.1.2 Well EW2

The November 2003 sampling in well EW2 detected a slightly elevated concentration of chlorobenzene, however all subsequent samples from well EW2 from 2004 to 2008 record chlorobenzene and heavy metal concentrations well below the DIVs.

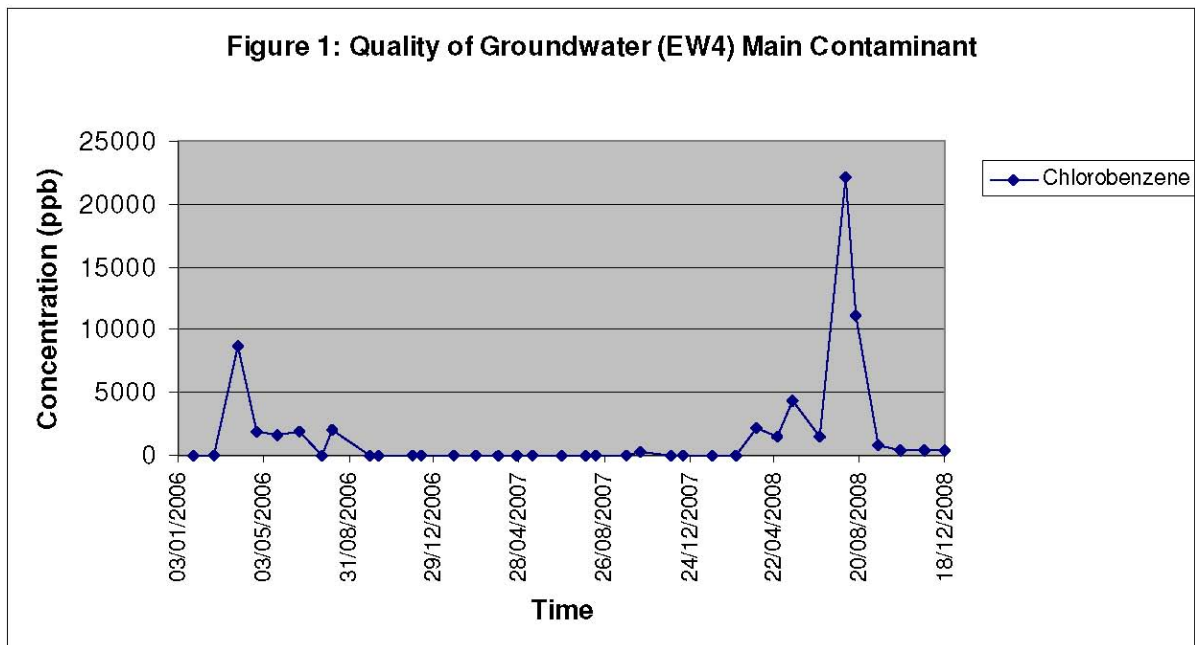
These results reflect a sustained decrease of contaminants to the trace levels currently observed, indicating that this well is relatively uncontaminated.

4.2.1.3 Well EW4

Since 2002 there has been a fluctuation in the concentration of chlorobenzene detected in well EW4.

Chlorobenzene has not been used at the Loughbeg site since 1993; therefore its continuing occurrence in the groundwater is related to historical sources, rather than ongoing losses to ground. This has been detailed in a report issued by URS entitled "Chlorobenzene in EW4-Loughbeg site".

As recommended in 2005 AER, EW4 has been sampled on a monthly basis from 2006 to 2008 (See Appendix B) and results to December 2008 are shown in the Figure 1 below.



Over the past 12 months the concentrations of chlorobenzene in well EW4 have fluctuated with the highest chlorobenzene concentration from the annual monitoring seen in mid 2008.

The most elevated detection of chlorobenzene in 2008 was 22,100 ppb on 30 July 2008. The chlorobenzene detections from March 2008 to December 2008 were above the DIV (180 ppb). The chlorobenzene detections throughout 2008 were above the Draft IGV for chlorobenzene (1 ppb) at well EW4.

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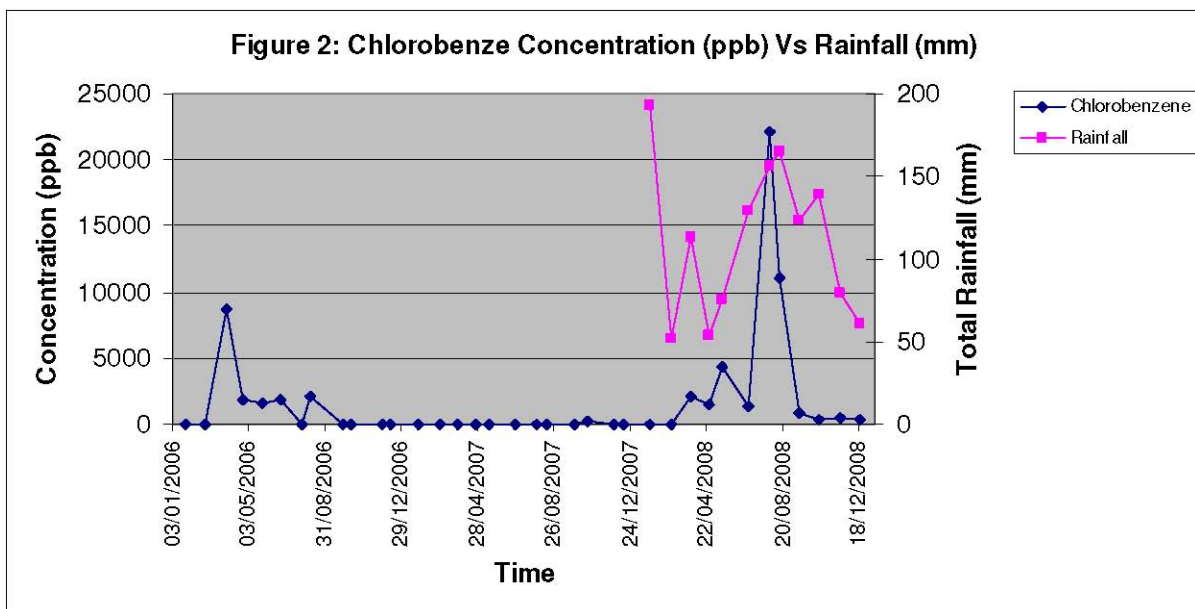
Page 6
Final
CKRP0001



The July 2008 and August 2008 results are considered to represent a localised phenomenon wherein residual chlorobenzene present in the subsoil is being flushed out by periods of heavy rainfall.

Figure 2 presents the same data set for chlorobenzene concentration (historically the key site contaminant) plotted with the total rainfall from the Cork Airport synoptic weather

station for 2008.



In addition to chlorobenzene, methyl tert-butyl ether (MTBE) was detected above the DIV (9,200 ppb) in groundwater at well EW4 in January 2008 (100,000 ppb), February 2008 (161,000 ppb) and August 2008 (43,300 ppb) (see Appendix C). MTBE was first detected in this well in July 2007 at 7 ppb

Toluene was detected at elevated levels in well EW4 from January 2008 to April 2008 above the DIV (1,000 ppb) over this time period, with the highest detection being in February 2008 (6,600 ppb). Toluene had been detected at less than 100 ppb from 1999 to 2007 in this well.

Dichloromethane (DCM) was detected above the DIV (1,000 ppb) at EW4 in January 2008 (26,600 ppb), February 2008 (71,900 ppb) and April 2008 (4,700 ppb). DCM had been detected at less than 100 ppb from 1999 to 2007 in this well.

The solvent concentrations at well EW4 in early and mid 2008 are not though to indicate a recent losses to the sub-surface (due to the presence of the historical compound

11

Met Eireann (www.met.ie) Monthly Data – Accessed on 23 February 2009



chlorobenzene) but are instead interpreted as leaching of historic contaminants from soils due to the exceptional rainfall, and hence groundwater elevations, recorded in Cork during certain early and mid 2008 (see Figure 2 above).

Groundwater from well EW4 is pumped at a slow but continuous rate and is treated within the site wastewater treatment plant, it is expected that this hydraulic containment further decreases the potential for groundwater impact to the environment.

4.2.2 Western Groundwater Area

Well MW5S

The biannual testing for MW5S in 2008 indicated that residual concentrations of organic solvents and heavy metals in groundwater continue to be well below the Dutch Intervention Values at this location, indicating that this well is relatively uncontaminated.

A review of the site environmental setting and the 2008 groundwater monitoring data has been carried out for the Pfizer Loughbeg API facility.

A review of historical data showed a major decline in detection of organic solvents in groundwater in 1996/1997, relating to attenuation of contaminants relating to a number of groundwater-related incidents at the site in the early 1990s.

In recent years the most significant compounds detected have been chlorobenzene and petroleum hydrocarbons in well EW4. However in 2008 MTBE, toluene and DCM were all detected at elevated levels in groundwater at EW4, generally between January and April 2008, which has been attributed to an increase in groundwater elevations brought about by the periods of extremely high rainfall experienced in 2008.

Chlorobenzene in well EW4 has shown seasonal fluctuation, with typical concentrations in the range 3,000 to 23,000 ppb during sustained periods of heavy rainfall and non-detect (<1 ppb) during drier conditions.

Owing to the low permeability of the bedrock and subsoils around well EW4 and the fact that well EW4 is pumped continuously, these chlorobenzene concentrations are considered to be localised and to pose negligible risk to the environment.

During its period of ownership in 2009, Pfizer plan to continue groundwater monitoring at the Site in 2009 for the same parameters and at the same frequency as 2008.



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FIGURES



KEY:

- GROUNDWATER MONITORING WELL
- GROUNDWATER ABSTRACTION WELL



Title		BOREHOLE SAMPLING LOCATION MAP	
Location		LOUGHBEG, RINGASKIDDY, CORK	

App'd	Reference	Date	AS SHOWN
TI App'd	Job No.	Scale	
KF	49341706		
FOR/KF/COR		FEB 2009	

TPS
Euro Business Park
Cork Island
Cork

FIGURE 1



Appendix A -2008 IPCC Groundwater Monitoring Data

PFIZER

GROUND WATER GROUPED RESULTS PAGE 10F2

DATE SAMPLE TAKEN	28/03/2008					
SAMPLED BY						
SAMPLE SOURCE	EW2	EW4	MW2	MW5		
TEST DESCRIPTION	TEST RESULTS				UNIT	METHOD
Water Level						
pH						
Temperature						
Conductivity						
TPH	<50	1083	<50		ug/l	subcontracted
NITRATE					mg/l	PFIZER ELAB 017
TOTAL AMMONIA					mg/l	PFIZER ELAB 015
COD					mg/l	PFIZER ELAB 011
MAJOR ANIONS						
CHLORIDE	16	35	371	11	mg/l	ET2443/APHA98 4500Cl:D
SULPHATE	31	42	136	21	mg/l	ETC981/APHA 1998S 4110:B
BICARBONATE	163	222	300	56	mg/l	ET0581APHA 1998 2320:B
MAJOR CATIONS						
SODIUM	55	29	280	24	mg/l	APHA '98 3111:B
POTASSIUM	0.2	9	5.5	4	mg/l	APHA '98 3111:B
CALCIUM	44.8	84.5	123	9.8	mg/l	APHA '98 3111:B
MAGNESIUM	3.1	3.2	7.7	1.3	mg/l	APHA '98 3111:B
Alkalinity(as CaCO3)	163	222	300	56	mg/l	ET0581APHA 1998 2320:B
HEAVY METALS						
CADMIUM	<0.5	<0.5	<0.5	1.8	ug/l	APHA '98 3030C:3111:B
CHROMIUM	<5		<5	<5	ug/l	subcontracted
LEAD	<5	<5	13	9	ug/l	subcontracted
ZINC	282	19	58	73	ug/l	APHA '98 3030C:3111:B
COPPER	0.008	<0.005	0.013	0.021	mg/l	APHA '98 3030C:3111:B
NICKEL	17	<5	6	32	ug/l	APHA '98 3030C:3111:B
MERCURY	<0.1	0.1	0.5	<0.1	ug/l	subcontracted
ARSENIC	<1	4	3	16	ug/l	subcontracted
SILVER	<15	<15	<15	<15	ug/l	subcontracted
SELENIUM	1	2	10	<1	ug/l	subcontracted
VOLATILE ORGANIC COMPOUNDS						
DICHLORODIFLUOROMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
CHLOROMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
VINYL CHLORIDE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
BROMOMETHANE	<0.5#	<0.5#	<0.5#	<0.5#	ppb	EPA 524.2
CHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
TRICHLOROFLUOROMETHANAE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2

1,1-DICHLOROETHENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
METHYLENE CHLORIDE	<0.2	690	<0.2	<0.2	ppb	EPA 524.2
TRANS-1,2-DICHLOROETHENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,1-DICHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
2,2-DICHLOROPROPANE	<0.5#	<0.5#	<0.5#	<0.5#	ppb	EPA 524.2
CIS-1,2-DICHLOROETHENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
BROMOCHLOROMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
CHLOROFORM	<0.2	3.2	<0.2	<0.2	ppb	EPA 524.2
1,1,1-TRICHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,1-DICHLOROPROPENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.3
CARBON TETRACHLORIDE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2-DICHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
BENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
TRICHLOROETHENE	<0.5#	<0.5#	<0.5#	<0.5#	ppb	EPA 524.2

VOLATILE ORGANIC COMPOUNDS CONTINUED

	EW2	EW4	MW2	MW5	UNIT	METHOD
1,2-DICHLOROPROPANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
DIBROMOMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
BROMODICHLOROMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
CIS-1,3-DICHLOROPROPENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
TOLUENE	<0.2	710	<0.2	<0.2	ppb	EPA 524.2
TRANS-1,3-DICHLOROPROPENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,1,2-TRICHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
TETRACHLOROETHENE	<0.2	0.4	<0.2	<0.2	ppb	EPA 524.2
1,3-DICHLOROPROPANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
DIBROMOCHLOROMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2-DIBROMOETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
CHLOROBENZENE	<0.2	1360	<0.2	<0.2	ppb	EPA 524.2
1,1,1,2-TETRACHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
ETHYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
M&P-XYLENE	<0.4	<0.4	<0.4	<0.4	ppb	EPA 524.2
O-XYLENE	<0.2	2	<0.2	<0.2	ppb	EPA 524.2
STYRENE	<0.2	0.2	<0.2	<0.2	ppb	EPA 524.2
BROMOFORM	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
ISOPROPYLBENZENE	<0.5#	0.7	<0.5#	<0.5#	ppb	EPA 524.2
BROMOBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,1,2,2-TETRACHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2,3-TRICHLOROPROPANE	<0.5#	<0.5#	<0.5#	<0.5#	ppb	EPA 524.2
N-PROPYLBENZENE	<0.5#	<0.5#	<0.5#	<0.5#	ppb	EPA 524.2
2-CHLOROTOLUENE	<0.5#	<0.5#	<0.5#	<0.5#	ppb	EPA 524.2
4-CHLOROTOLUENE	<0.5#	<0.5#	<0.5#	<0.5#	ppb	EPA 524.2
N-PROPYLBENZENE	<0.2	-	<0.2	<0.2	ppb	EPA 524.2
1,3,5-TRIMETHYLBENZENE	<0.2	14	<0.2	<0.2	ppb	EPA 524.2
TERT-BUTYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2,4-TRIMETHYLBENZENE	<0.5#	21	<0.5#	<0.5#	ppb	EPA 524.2
SEC-BUTYLBENZENE	<0.5#	<0.5#	<0.5#	<0.5#	ppb	EPA 524.2
1,3-DICHLOROBENZENE	<0.5#	<0.5#	<0.5#	<0.5#	ppb	EPA 524.2
p-ISOPROPYLTOLUENE	<0.5#	<0.5#	<0.5#	<0.5#	ppb	EPA 524.2
1,4-DICHLOROBENZENE	<0.2	0.2	<0.2	<0.2	ppb	EPA 524.2
1,2-DICHLOROBENZENE	<0.5#	<0.5#	<0.5#	<0.5#	ppb	EPA 524.2
N-BUTYLBENZENE	<0.2	2.1	<0.2	<0.2	ppb	EPA 524.2
1,2-DIBROMO-3-CHLOROPROPANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2,4-TRICHLOROBENZENE	<0.5#	<0.5#	<0.5#	<0.5#	ppb	EPA 524.2
HEXACHLOROBUTADIENE	<0.5#	<0.5#	<0.5#	<0.5#	ppb	EPA 524.2
NAPHTHALENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2,3-TRICHLOROBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
MTBE	5.6	1540	1.2	0.7	ppb	EPA 524.2

* = Raised detection limit due to carryover from EW4 sample

SIGNED _____

DATE _____

PFIZER

GROUND WATER GROUPED RESULTS

PAGE 1 OF 2

DATE SAMPLE TAKEN 09/10/2008

SAMPLED BY Aileen Ashe

SAMPLE SOURCE EW2 EW4 MW2 MW5

TEST DESCRIPTION	TEST RESULTS					UNIT	METHOD
Water Level	0.3	unable to access due to narrow opening	9.4	0.6		m	dip meter
pH	6.9	7.8	5.7	7.4			
Temperature	ambient	ambient	ambient	ambient			
Conductivity	449	308	1951	187		uS/cm	ET 0562 APHA 2005:2510:B
TPH	118	144	46	367		ug/l	subcontracted
NITRATE	1	<0.5	<0.5	0.5		mg/l	ET 044 APHA 4500
TOTAL AMMONIA	1.2	<0.1	0.5	<0.1		mg/l	ET 0383 MEWAM 1981
COD	73	<15	32	6		mg/l	ET 0673 APHA 2005:5220:C

MAJOR ANIONS

CHLORIDE	25	9	389	14		mg/l	ET2443/APHA98 4500Cl:D
SULPHATE	83	15	142	12		mg/l	ETC981/APHA 1998S 4110:B
BICARBONATE	145	150	290	50		mg/l	ET0581APHA 1998 2320:B

MAJOR CATIONS

SODIUM	44	9	280	19		mg/l	APHA 2005 3111:B
POTASSIUM	0.2	5.2	2.8	4		mg/l	APHA 2005 3111:B
CALCIUM	47.5	48.5	143	9.5		mg/l	APHA 2005 3111:B
MAGNESIUM	2.9	1.6	10.4	1.2		mg/l	APHA 2005 3111:B
Alkalinity(as CaCO3)	145	150	290	50		mg/l	ET0581APHA 1998 2320:B

HEAVY METALS

CADMIUM	<0.5	<0.5	<0.5	<0.5		ug/l	??
CHROMIUM	<0.1	0.1	<0.1			ug/l	subcontracted-???
LEAD	<1	<1	<1			ug/l	subcontracted-???
ZINC	201	3	<1	8		ug/l	APHA '98 3030C:3111:B
COPPER	0.5	4	0.3	0.3		ug/l	???
NICKEL	26	5	1	1		ug/l	APHA '98 3030C:3111:B
MERCURY			<0.01			mg/l	subcontracted
ARSENIC			<0.01			mg/l	subcontracted
SILVER			<0.01			mg/l	subcontracted
SELENIUM			<0.01			mg/l	subcontracted
TOTAL HEAVY METALS	0.23	0.01	<0.01	0.01		mg/l	

VOLATILE ORGANIC COMPOUNDS

DICHLORODIFLUOROMETHANE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2
CHLOROMETHANE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2
VINYL CHLORIDE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2
BROMOMETHANE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2
CHLOROETHANE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2
TRICHLOROFLUOROMETHANE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2
1,1-DICHLOROETHENE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2
METHYLENE CHLORIDE	<0.2	5.9	<0.2	<0.2		ppb	EPA 524.2
TRANS-1,2-DICHLOROETHENE	<0.2	<0.2	0.3	<0.2		ppb	EPA 524.2
1,1-DICHLOROETHANE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2
2,2-DICHLOROPROPANE	<0.5#	<0.5#	<0.5	<0.5#		ppb	EPA 524.2
CIS-1,2-DICHLOROETHENE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2
BROMOCHLOROMETHANE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2
CHLOROFORM	<0.2	<0.2	0.8	<0.2		ppb	EPA 524.2
1,1,1-TRICHLOROETHANE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2
1,1-DICHLOROPROPENE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.3
CARBON TETRACHLORIDE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2
1,2-DICHLOROETHANE	0.4	<0.2	17	<0.2		ppb	EPA 524.2
BENZENE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2
TRICHLOROETHENE	<0.2	<0.2	<0.2	<0.2		ppb	EPA 524.2

VOLATILE ORGANIC COMPOUNDS CONTINUED

EW2 EW4 MW2 MW5 UNIT METHOD

1,2-DICHLOROPROPANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
DIBROMOMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
BROMODICHLOROMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
CIS-1,3-DICHLOROPROPENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
TOLUENE	7.3	100	<0.2	<0.2	ppb	EPA 524.2
TRANS-1,3-DICHLOROPROPENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,1,2-TRICHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
TETRACHLOROETHENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,3-DICHLOROPROPANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
DIBROMOCHLOROMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2-DIBROMOETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
CHLOROBENZENE	38	240	185	<0.2	ppb	EPA 524.2
1,1,1,2-TETRACHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
ETHYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
M&P-XYLENE	<0.4	<0.4	<0.4	<0.4	ppb	EPA 524.2
O-XYLENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
STYRENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
BROMOFORM	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
ISOPROPYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
BROMOBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,1,2,2-TETRACHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2,3-TRICHLOROPROPANE	<0.2	<0.2	<0.5	<0.2	ppb	EPA 524.2
N-PROPYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
2-CHLOROTOLUENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
4-CHLOROTOLUENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
N-PROPYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,3,5-TRIMETHYLBENZENE	<0.2	2.3	<0.2	<0.2	ppb	EPA 524.2
TERT-BUTYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2,4-TRIMETHYLBENZENE	<0.2	<0.5#	<0.2	<0.2	ppb	EPA 524.2
SEC-BUTYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,3-DICHLOROBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
p-ISOPROPYLTOLUENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,4-DICHLOROBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2-DICHLOROBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
N-BUTYLBENZENE	<0.2	0.2	<0.2	<0.2	ppb	EPA 524.2
1,2-DIBROMO-3-CHLOROPROPANE	<0.2	<0.2	<0.2	<0.5#	ppb	EPA 524.2
1,2,4-TRICHLOROBENZENE	<0.5#	<0.5#	<0.2	<0.5#	ppb	EPA 524.2
HEXACHLOROBUTADIENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
NAPHTHALENE	<0.5#	<0.5#	<0.5	<0.5#	ppb	EPA 524.2
1,2,3-TRICHLOROBENZENE	<0.5#	<0.5#	<0.5	<0.5#	ppb	EPA 524.2
MTBE					ppb	EPA 524.2

= Raised detection limit due to carryover from EW4 sample

SIGNED _____

DATE _____

PFIZER

GROUND WATER GROUPED RESULTS

PAGE 1 OF 2

DATE SAMPLE TAKEN 09/10/2008

SAMPLED BY Aileen Ashe

SAMPLE SOURCE EW2 EW4 MW2 MW5

TEST DESCRIPTION	TEST RESULTS				UNIT	METHOD
Water Level	0.3	unable to access due to narrow opening	9.4	0.6	m	dip meter
pH	6.9	7.8	5.7	7.4		
Temperature	ambient	ambient	ambient	ambient		
Conductivity	449	308	1951	187	uS/cm	ET 0562 APHA 2005:2510:B
TPH	118	144	46	367	ug/l	subcontracted
NITRATE	1	<0.5	<0.5	0.5	mg/l	ET 044 APHA 4500
TOTAL AMMONIA	1.2	<0.1	0.5	<0.1	mg/l	ET 0383 MEWAM 1981
COD	73	<15	32	6	mg/l	ET 0673 APHA 2005:5220:C
MAJOR ANIONS						
CHLORIDE	25	9	389	14	mg/l	ET2443/APHA98 4500Cl:D
SULPHATE	83	15	142	12	mg/l	ETC981/APHA 1998S 4110:B
BICARBONATE	145	150	290	50	mg/l	ET0581APHA 1998 2320:B
MAJOR CATIONS						
SODIUM	44	9	280	19	mg/l	APHA 2005 3111:B
POTASSIUM	0.2	5.2	2.8	4	mg/l	APHA 2005 3111:B

CALCIUM	47.5	48.5	143	9.5	mg/l	APHA 2005 3111:B
MAGNESIUM	2.9	1.6	10.4	1.2	mg/l	APHA 2005 3111:B
Alkalinity(as CaCO3)	145	150	290	50	mg/l	ET0581APHA 1998 2320:B

HEAVY METALS

CADMIUM	<0.5	<0.5	<0.5	<0.5	ug/l	??
CHROMIUM	<0.1	0.1	<0.1		ug/l	subcontracted-???
LEAD	<1	<1	<1		ug/l	subcontracted-???
ZINC	201	3	<1	8	ug/l	APHA '98 3030C:3111:B
COPPER	0.5	4	0.3	0.3	ug/l	???
NICKEL	26	5	1	1	ug/l	APHA '98 3030C:3111:B
MERCURY			<0.01		mg/l	subcontracted
ARSENIC			<0.01		mg/l	subcontracted
SILVER			<0.01		mg/l	subcontracted
SELENIUM			<0.01		mg/l	subcontracted
TOTAL HEAVY METALS	0.23	0.01	<0.01	0.01	mg/l	

VOLATILE ORGANIC COMPOUNDS

DICHLORODIFLUOROMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
CHLOROMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
VINYL CHLORIDE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
BROMOMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
CHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
TRICHLOROFLUOROMETHANAE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,1-DICHLOROETHENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
METHYLENE CHLORIDE	<0.2	5.9	<0.2	<0.2	ppb	EPA 524.2
TRANS-1,2-DICHLOROETHENE	<0.2	<0.2	0.3	<0.2	ppb	EPA 524.2
1,1-DICHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
2,2-DICHLOROPROPANE	<0.5#	<0.5#	<0.5	<0.5#	ppb	EPA 524.2
CIS-1,2-DICHLOROETHENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
BROMOCHLOROMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
CHLOROFORM	<0.2	<0.2	0.8	<0.2	ppb	EPA 524.2
1,1,1-TRICHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,1-DICHLOROPROPENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.3
CARBON TETRACHLORIDE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2-DICHLOROETHANE	0.4	<0.2	17	<0.2	ppb	EPA 524.2
BENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
TRICHLOROETHENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2

VOLATILE ORGANIC COMPOUNDS CONTINUED

	EW2	EW4	MW2	MW5	UNIT	METHOD
1,2-DICHLOROPROPANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
DIBROMOMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
BROMODICHLOROMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
CIS-1,3-DICHLOROPROPENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
TOLUENE	7.3	100	<0.2	<0.2	ppb	EPA 524.2
TRANS-1,3-DICHLOROPROPENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,1,2-TRICHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
TETRACHLOROETHENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,3-DICHLOROPROPANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
DIBROMOCHLOROMETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2-DIBROMOETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
CHLOROBENZENE	38	240	185	<0.2	ppb	EPA 524.2
1,1,1,2-TETRACHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
ETHYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
M&P-XYLENE	<0.4	<0.4	<0.4	<0.4	ppb	EPA 524.2
O-XYLENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
STYRENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
BROMOFORM	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
ISOPROPYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
BROMOBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,1,2,2-TETRACHLOROETHANE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2,3-TRICHLOROPROPANE	<0.2	<0.2	<0.5	<0.2	ppb	EPA 524.2
N-PROPYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
2-CHLOROTOLUENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
4-CHLOROTOLUENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
N-PROPYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,3,5-TRIMETHYLBENZENE	<0.2	2.3	<0.2	<0.2	ppb	EPA 524.2
TERT-BUTYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2,4-TRIMETHYLBENZENE	<0.2	<0.5#	<0.2	<0.2	ppb	EPA 524.2
SEC-BUTYLBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,3-DICHLOROBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
p-ISOPROPYLTOLUENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2

1,4-DICHLOROBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
1,2-DICHLOROBENZENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
N-BUTYLBENZENE	<0.2	0.2	<0.2	<0.2	ppb	EPA 524.2
1,2-DIBROMO-3-CHLOROPROPANE	<0.2	<0.2	<0.2	<0.5#	ppb	EPA 524.2
1,2,4-TRICHLOROBENZENE	<0.5#	<0.5#	<0.2	<0.5#	ppb	EPA 524.2
HEXACHLOROBUTADIENE	<0.2	<0.2	<0.2	<0.2	ppb	EPA 524.2
NAPHTHALENE	<0.5#	<0.5#	<0.5	<0.5#	ppb	EPA 524.2
1,2,3-TRICHLOROBENZENE	<0.5#	<0.5#	<0.5	<0.5#	ppb	EPA 524.2
MTBE					ppb	EPA 524.2

= Raised detection limit due to carryover from EW4 sample

SIGNED _____

DATE _____



Appendix B -Monthly Sampling Results for Chlorobenzene for On-Site Well EW4 to December 2008

Appendix 2 -Groundwater Monitoring Data for Chlorobenzene in Well EW4 from January 2006 to December 2008

Date Sampled	Units	IGV	DIV	Chlorobenzene (ppb) Well EW4
24-Jan-06	µg/l	1	180	0.2
23-Feb-06	µg/l	1	180	0.2
28-Mar-06	µg/l	1	180	8,700
24-Apr-06	µg/l	1	180	1,900
24-May-06	µg/l	1	180	1,600
22-Jun-06	µg/l	1	180	1,900
25-Jul-06	µg/l	1	180	4
09-Aug-06	µg/l	1	180	2,100
29-Sep-06	µg/l	1	180	1
11-Oct-06	µg/l	1	180	10
30-Nov-06	µg/l	1	180	0.2
12-Dec-06	µg/l	1	180	<5
25-Jan-07	µg/l	1	180	<5
27-Feb-07	µg/l	1	180	<5
29-Mar-07	µg/l	1	180	<5
26-Apr-07	µg/l	1	180	<5
17-May-07	µg/l	1	180	<5
26-Jun-07	µg/l	1	180	<5
30-Jul-07	µg/l	1	180	<5
15-Aug-07	µg/l	1	180	<5
27-Sep-07	µg/l	1	180	<5
17-Oct-07	µg/l	1	180	250
28-Nov-07	µg/l	1	180	0.5
14-Dec-07	µg/l	1	180	<5
25-Jan-08	µg/l	1	180	9
28-Feb-08	µg/l	1	180	14
28-Mar-08	µg/l	1	180	2,150
21-Apr-08	µg/l	1	180	1,500
21-May-08	µg/l	1	180	4,300
20-Jun-08	µg/l	1	180	1,430
25-Jul-08	µg/l	1	180	22,100
27-Aug-08	µg/l	1	180	11,100
30-Sep-08	µg/l	1	180	880
22-Oct-08	µg/l	1	180	380
19-Nov-08	µg/l	1	180	440
17-Dec-08	µg/l	1	180	410

Notes

1. Results in ppb except where otherwise indicated.
2. IGV -Interim Guideline Value
3. DIV -Dutch Intervention Value ppb -Parts per billion
4. Indicates the result is above the IGV

5. Indicates the result is above the DIV



Appendix C -Complete Monthly Sampling Results for Volatile Organic Compounds for On-Site Well EW4 in 2008

Appendix C -Monthly VOC Data for Well EW4 in 2008 Appendix C -Monthly VOC Data for Well EW4 in 2008

			25/01/2008	28/02/2008	28/03/2008	21/04/2008	21/05/2008	20/06/2008	25/07/2008	27/08/2008	30/09/2008
TEST											
1,1,1,2-tetrachloroethane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
1,1,1-trichloroethane			<0.2ug/l	<1.0ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.5ug/l*	<0.2ug/l	<2ug/l	<1ug/l
1,1,2,2-tetrachloroethane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
1,1,2-trichloroethane			<0.2ug/l	<1.0ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
1,1-dichloroethane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
1,1-dichloroethene			1.5ug/l	2.6ug/l	<0.2ug/l	2.5ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
1,1-dichloropropene			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
1,2 dichloroethane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.5ug/l*	<0.2ug/l	<2ug/l	<1ug/l
1,2,3-trichlorobenzene			<0.5ug/l**	<1ug/l	<0.2ug/l	<0.5ug/l#	<0.2ug/l	<0.5ug/l*	<0.2ug/l	<2ug/l	<1ug/l
1,2,3-trichloropropane			<0.2ug/l	<1ug/l	<0.5ug/l#	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
1,2,4-trichlorobenzene			<0.5ug/l**	<1ug/l	<0.5ug/l#	<0.5ug/l#	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
1,2,4-trimethylbenzene			3.6ug/l	4.5ug/l	22ug/l	9.8ug/l	31ug/l	19ug/l	14ug/l	140ug/l	78ug/l
1,2-dibromo-3-chloropropane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
1,2-dibromoethane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
1,2-dichlorobenzene			<0.3ug/l**	<1ug/l	<0.5ug/l#	<0.3ug/l	<0.2ug/l	0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
1,2-dichloropropane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.5ug/l*	<0.2ug/l	<2ug/l	<1ug/l
1,3,5-trimethylbenzene			8.5ug/l	<1ug/l	13ug/l	6.4ug/l	22ug/l	15ug/l	18ug/l	44ug/l	31ug/l
1,3-dichlorobenzene			<0.2ug/l	<1ug/l	<0.5ug/l#	<0.3ug/l	<0.5ug/l*	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
1,3-dichloropropane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.5ug/l*	<0.2ug/l	<2ug/l	<1ug/l
1,4-dichlorobenzene			<0.3ug/l**	<1ug/l	0.3ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
2,2-dichloropropane			<0.5ug/l#	<1ug/l	<0.5#	<0.5ug/l#	<0.5ug/l*	<0.5ug/l*	<0.2ug/l	<2ug/l	<1ug/l
2,3-trichloropropane											
2-chlorotoluene			<0.2ug/l	<1ug/l	<0.5ug/l#	<0.3ug/l	<0.5ug/l*	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
4-chlorotoluene			<0.4ug/l**	<1ug/l	<0.5ug/l#	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Alkalinity(as CaCO3)(pH 4.5)					222mg/l						
Arsenic					4ug/l						
Benzene			0.5ug/l	1.3ug/l	<0.2ug/l	1.2ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Bicarbonate Alkalinity(CaCO3)					222mg/l						
Bromobenzene			<0.4ug/l**	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Bromochloromethane			<0.2ug/l	<1ug/l	<0.2ug/l	1.8ug/l	<0.2ug/l	<0.5ug/l*	<0.2ug/l	<2ug/l	<1ug/l
Bromodichloromethane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Bromoform			<0.4ug/l**	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Bromomethane			<0.5ug/l#	<1ug/l	<0.5ug/l#	<0.5ug/l#	<0.2ug/l	<0.5ug/l*	<0.2ug/l	<2ug/l	<1ug/l

Cadmium					<0.5ug/l						
Calcium					84.5mg/l						
carbon tetrachloride			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Chloride					35mg/l						
Chlorobenzene			9.4ug/l	14ug/l	2150ug/l	1500ug/l-#	4300ug/l	1430ug/l	22100##	11100ug/l	880ug/l
chloroethane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Chloroform			<0.2ug/l	<1ug/l	3.1ug/l	3ug/l	1.2ug/l	2.6ug/l	2.3ug/l	<2ug/l	2.5ug/l
chloromethane			260ug/l *	NR	<0.2ug/l	0.6ug/l	1.6ug/l	1ug/l	1.5ug/l	46ug/l	<1ug/l
Chromium											
Cis 1,2 dichloroethene			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	0.3ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
cis-1,3-dichloropropene			<0.5ug/l#	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.5ug/l*	<0.2ug/l	<2ug/l	<1ug/l
Copper					<0.005mg/l						
Dibromochloromethane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Dibromomethane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
dichlorodifluoromethane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2.0ug/l	<1ug/l
dichloromethane			26600ug/l	71900ug/l	590ug/l	4700ug/l~	22ug/l	36ug/l	0.8ug/l	197ug/l	<1ug/l
Ethylbenzene			<0.5ug/l**	<1ug/l	<0.2ug/l	0.5ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Hexachlorobutadiene			<0.5ug/l	<1ug/l		<0.5ug/l#	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Isopropylbenzene			<0.5ug/l**	<1ug/l	<0.5ug/l#	0.7ug/l	3.2ug/l	0.8ug/l	0.2ug/l	3.8ug/l	3.5ug/l
Lead					<5ug/l						
Magnesium					3.2mg/l						
Mercury					<0.1ug/l						
Meta-xylene & para-xylene(total)			<0.4ug/l	<2.0ug/l	<0.4ug/l	1.7ug/l	<0.4ug/l	<0.4ug/l	<0.4ug/l	<4ug/l	<1ug/l
MTBE			100000ug/l	161000ug/l	5140ug/l	3100ug/l	35ug/l	170ug/l	2.9ug/l	43300ug/l	4000
N butylbenzene			0.8ug/l	1.5ug/l	3ug/l	0.4ug/l	1.5ug/l	1.4ug/l	0.7ug/l	<0.5#	<1ug/l
N propyl benzene			<0.5ug/l**	<1ug/l	<0.5ug/l#	1.4ug/l	16ug/l	4ug/l	0.8ug/l	16ug/l	11ug/l
Naphthalene			<0.5ug/l**	<1ug/l	0.3ug/l	<0.5ug/l#	0.2ug/l	<0.5ug/l*	<0.2ug/l	<5ug/l#	<1ug/l
Nickel					<5ug/l						
Ortho-xylene			1.5ug/l	2ug/l	1.7ug/l	2ug/l	3.6ug/l	1.7ug/l	1.6ug/l	5.5ug/l	4.1ug/l
p-isopropyltoluene			<0.4ug/l**	1.7ug/l	<0.5ug/l#	<0.3ug/l	0.3ug/l	1.4ug/l	<0.2ug/l	<5ug/l#	<1ug/l
Potassium					9mg/l						
Sec butylbenzene			<0.4ug/l**	<1ug/l	<0.5ug/l#	<0.3ug/l	0.8ug/l	<0.5ug/l*	<0.2ug/l	<2ug/l	<1ug/l
Selenium					2ug/l						
Silver					<15ug/l						
Sodium					29mg/l						
Styrene			<0.4ug/l**	<1ug/l	<0.2ug/l	0.4ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Sulphate(IC)					42mg/l						
tert-butylbenzene			<0.4ug/l**	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Tetrachloroethene			<0.2ug/l	<1ug/l	0.3ug/l	<0.3ug/l	0.4ug/l	<0.5ug/l*	0.4ug/l	<2ug/l	<1ug/l
Toluene			1500ug/l	6600ug/l	1540ug/l	>1400ug/l##	<0.5ug/l*	150ug/l	20ug/l	510ug/l	49ug/l
Total Heavy Metals											
Total petroleum hydrocarbons					1083ug/l						
total VOC's											
Trans-1,2-dichloroethene			<0.2ug/l	<1ug/l	<0.2ug/l	1.1ug/l	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l

Trans-1,3-dichloropropene			<0.5ug/l#	<1ug/l	<0.2ug/l	<0.3ug/l	<0.2ug/l	<0.5ug/l*	<0.2ug/l	<2ug/l	<1ug/l
Trichloroethene			<0.2ug/l	<1ug/l	<0.5ug/l#	<0.3ug/l	<0.2ug/l	<0.5ug/l*	<0.2ug/l	<2ug/l	<1ug/l
Trichlorofluoromethane			<0.2ug/l	<1ug/l	<0.2ug/l	<0.5ug/l#	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Vinyl Chloride			<0.2ug/l	<1ug/l	<0.2ug/l	<0.5ug/l#	<0.2ug/l	<0.2ug/l	<0.2ug/l	<2ug/l	<1ug/l
Zinc					19ug/l						
Total C3 alkyl benzenes			28ug/l								
Total C4 alkyl benzenes			4.1ug/l								

			22/10/2008	19/11/2008	17/12/2008
TEST					
1,1,1,2-tetrachloroethane			<1ug/l	<0.2ug/l	<0.2ug/l
1,1,1-trichloroethane			<1ug/l	<0.2ug/l	<0.2ug/l
1,1,2,2-tetrachloroethane			<1ug/l	<0.2ug/l	<0.2ug/l
1,1,2-trichloroethane			<1ug/l	<0.2ug/l	<0.2ug/l
1,1-dichloroethane			<1ug/l	<0.2ug/l	<0.2ug/l
1,1-dichloroethene			<1ug/l	<0.2ug/l	<0.2ug/l
1,1-dichloropropene			<1ug/l	<0.2ug/l	<0.2ug/l
1,2 dichloroethane			<1ug/l	<0.2ug/l	<0.2ug/l
1,2,3-trichlorobenzene			<1ug/l	<0.5ug/l#	<0.2ug/l
1,2,3-trichloropropane			<1ug/l	<0.2ug/l	<0.2ug/l
1,2,4-trichlorobenzene			<1ug/l	<0.5ug/l#	<0.2ug/l
1,2,4-trimethylbenzene			2.8ug/l	3.2ug/l	1.7ug/l
1,2-dibromo-3-chloropropane			<1ug/l	<0.2ug/l	<0.2ug/l
1,2-dibromoethane			<1ug/l	<0.2ug/l	<0.2ug/l
1,2-dichlorobenzene			<1ug/l	<0.2ug/l	<0.2ug/l
1,2-dichloropropane			<1ug/l	<0.2ug/l	<0.2ug/l
1,3,5-trimethylbenzene			3.2ug/l	2.9ug/l	1.7ug/l
1,3-dichlorobenzene			<1ug/l	<0.2ug/l	<0.2ug/l
1,3-dichloropropane			<1ug/l	<0.2ug/l	<0.2ug/l
1,4-dichlorobenzene			<1ug/l	<0.2ug/l	<0.2ug/l
2,2-dichloropropane			<1ug/l	<0.5ug/l#	<0.5ug/l#
2,3-trichloropropane					
2-chlorotoluene			<1ug/l	<0.2ug/l	<0.2ug/l
4-chlorotoluene			<1ug/l	<0.2ug/l	<0.2ug/l
Alkalinity(as CaCO3)(pH 4.5)					
Arsenic					
Benzene			<1ug/l	<0.2ug/l	<0.2ug/l
Bicarbonate Alkalinity(CaCO3)					
Bromobenzene			<1ug/l	<0.2ug/l	<0.2ug/l
Bromochloromethane			<1ug/l	<0.2ug/l	<0.2ug/l
Bromodichloromethane			<1ug/l	<0.2ug/l	<0.2ug/l
Bromoform			<1ug/l	<0.5ug/l#	<0.2ug/l
Bromomethane			<1ug/l	<0.5ug/l#	<0.5ug/l#
Cadmium					

Calcium					
carbon tetrachloride			<1ug/l	<0.2ug/l	<0.2ug/l
Chloride					
Chlorobenzene			380ug/l	440ug/l##	410ug/l
chloroethane			<1ug/l	<0.2ug/l	<0.5ug/l#
Chloroform			<1ug/l	0.6ug/l	2.8ug/l
chloromethane			<1ug/l	1.6ug/l	2.3ug/l
Chromium					
Cis 1,2 dichloroethene			<1ug/l	<0.2ug/l	<0.2ug/l
cis-1,3-dichloropropene			<1ug/l	<0.2ug/l	<0.2ug/l
Copper					
Dibromochloromethane			<1ug/l	<0.2ug/l	<0.2ug/l
Dibromomethane			<1ug/l	<0.2ug/l	<0.2ug/l
dichlorodifluoromethane			<1ug/l	<0.2ug/l	<0.2ug/l
dichloromethane			<1ug/l	0.5ug/l	<0.2ug/l
Ethylbenzene			<1ug/l	<0.2ug/l	<0.2ug/l
Hexachlorobutadiene			<1ug/l	<0.5ug/l#	<0.2ug/l
Isopropylbenzene			<1ug/l	<0.2ug/l	<0.2ug/l
Lead					
Magnesium					
Mercury					
Meta-xylene & para-xylene(total)			<1ug/l	<0.4ug/l	<0.4ug/l
MTBE			58	132	79
N butylbenzene			<1ug/l	0.3ug/l	<0.2ug/l
N propyl benzene			<1ug/l	0.2ug/l	0.3ug/l
Napthalene			<1ug/l	<0.5ug/l#	<0.5ug/l#
Nickel					
Ortho-xylene			<1ug/l	0.3ug/l	<0.2ug/l
p-isopropyltoluene			<1ug/l	<0.2ug/l	<0.2ug/l
Potassium					
Sec butylbenzene			<1ug/l	<0.2ug/l	<0.2ug/l
Selenium					
Silver					
Sodium					
Styrene			<1ug/l	<0.2ug/l	<0.2ug/l
Sulphate(IC)					
tert-butylbenzene			<1ug/l	<0.2ug/l	<0.2ug/l
Tetrachloroethene			<1ug/l	<0.2ug/l	<0.2ug/l
Toluene			3.6ug/l	87ug/l	45ug/l
Total Heavy Metals					
Total petroleum hydrocarbons					
total VOC's					
Trans-1,2-dichloroethene			<1ug/l	<0.2ug/l	<0.2ug/l
Trans-1,3-dichloropropene			<1ug/l	<0.2ug/l	<0.2ug/l

Trichloroethene			<1 ug/l	<0.2ug/l	<0.2ug/l
Trichlorofluoromethane			<1 ug/l	<0.2ug/l	<0.2ug/l
Vinyl Chloride			<1 ug/l	<0.2ug/l	<0.2ug/l
Zinc					
Total C3 alkyl benzenes					
Total C4 alkyl benzenes					

Appendix 12:

Fugitive Emissions Study

In light of the site sale process, a fugitive emissions study was not completed during 2008.

A fugitive emission study will be completed in 2009 as part of the licence requirements

Appendix 13:

**Integrity and water tightness of all banded structures and their
penetration by water or other materials**

Loughbeg API:

Testing completed in 2007:

Bund	Description	Status	Dept. in control of Bund
4J	Bulk Storage - Large Size	Passed	CB1
8D	South Bund CB1	Passed	CB1
14A	Scrubber Tank 77 Bund	Passed	CB1
15	Effluent Bund North	Passed	CB1
16	Absorber (Vara) Bund	Passed	CB1
K	CB2 Process Bund (North Sump)	Passed	CB2
L	CB2 Scrubber Tank Bund	Passed	CB2
M/Q	CB2 Hot Syltherm Bund	Passed	CB2
32	Weak Effluent bund	Passed	WWTP
4A	Bulk Storage	Passes	CB1
4 D	Bulk Storage	Passed	CB1
20	Acid & Hypo Storage Bund	Passed	CB1

Testing completed in 2008:

2008			
Bund	Description	Status	Dept in Control of Bund
4B	Bulk Storage	Passsed May '08	CB1
4C	Bulk Storage	Passsed May '08	CB1
4E	Bulk Storage	Passsed May '08	CB1
4F	Bulk Storage	Passsed May '08	CB1
4G	Bulk Storage	Passsed May '08	CB1
4J - Small	Bulk Storage	Passsed May '08	CB1
4K	Bulk Storage	Passsed May '08	CB1
4L	Bulk Storage	Passsed May '08	CB1
4N	Bulk Storage	Passsed May '08	CB1
8A	South Bund CB1	Passsed May '08	CB1
8B	South Bund CB1	Passsed May '08	CB1
10- Large	Reactor Bund	Passsed May '08	CB1
10- Small	Reactor Bund	Passsed May '08	CB1
14B	Methanol Bund	Passsed May '08	Utilities
18/N	Drum Pad	Passsed May '08	Warehouse
20	Acid & Hypo Storage Bund	Passsed May '08	CB1
O	Environmental Drum Pad	Passsed May '08	WWTP
12	Ammonia bund North Bund CB1	Passsed May '08	CB1
35	East Fire Water Diesel Tank Bund	Passsed May '08	Engineering

LO Drug Product Plant

Inspection of Bunds as per IPPC Licence

Summary

Condition 6 (Section 6.9) of the IPPC Licence (P0010 - 04) requires the Pfizer LODP plant to undertake testing and inspection of bunding structures once every 3 years.

The diesel generator bund was tested & passed its integrity and water tightness test on 29th January 2008.

The onsite waste holding tank (capacity: 25,000L) was tested and passed its integrity test on 24th February 2009

18 March 2009

APPENDIX 14:

Testing and inspection of underground tanks and pipelines

Inspection of underground Process and Foul Drains as per IPPC Licence

Summary

Loughbeg API

Underground Drainage

Under clause 9.3.6 of the EPA licence it states that the licensee should undertake a programme of testing and inspection of underground tanks and pipelines to ensure that all underground effluent and foul sewer lines are tested at least once every 3 years.

Under the recent foul drainage and road reinstatement project, a total of 578m of foul drainage was tested with a remaining balance of 580m yet to be tested.

There is approximately 3,200m of storm drainage on site. None of which has been tested. The existing storm drainage is under sized and it was planned to upgrade there with the foul drainage contract. This was submitted in a CPA Ref. A01000181 in August 2002 with a total cost of €8,436,798 but was rejected by Pfizer corporate due to cost even though it was being justified that it was a IPC licence compliance issue.

With regard to the existing storm underground pipe work, the hydraulic capacity of the existing network is net capable of taking the firewater run-off from the largest firewater demand as specified in the EOA (Dept) Guidance note to industry or the requirements for Firewater Retention Facilities (1995). Upgrading of the hydraulic capacity underground drainage system is required to comply with the requirements.

In a contract carried which commenced in 2004, 578m from a total of 1158m of foul drainage was upgraded and tested, 60m from @ total of 573m process drainage was upgraded and tested and a minor amount of storm drainage which was adjacent to the foul drainage was upgraded replaced and tested.

A quote has been received from Munster Drains to carry out repairs to the storm drainage underground system. This involves using CCTV camera and lining the pipe work in-site, the quote amounted to €471,750.

UPDATE 2008:

There has been no tests carried out on the underground sewer / storm / process drains due to the absence of a site shutdown.

LO Drug Product Plant

2008 Update

Inspection of underground Process and Foul Drains as per IPPC Licence

Summary

Condition 6 (Section 6.9) of the IPPC Licence (P0010 - 04) requires the Pfizer LODP plant to undertake testing and inspection of underground pipelines once every 3 years.

To satisfy this condition, the LODP plant commissioned Dyna-Rod to conduct this testing and inspection.

The process and foul drains were tested on 23 June 2008.

This inspection indicated that one of the foul drains required de-greasing and that another foul drain needed to be flushed out. It recommended that Dyna-Rod re-survey these drains once this remedial work had been undertaken.

The remedial work was completed and Dyna-Rod re-surveyed the affected foul drains on 6 September 2008. A report was issued on 9 September 2008 indicating that the lines were clear.

Appendix 15:

Energy Efficiency Audit

Loughbeg API

Primary driver	Assessment description	Project Name	Project owner	Status	Actual Completion Date	Total Annualised Energy (Reduction)/Increase (MWh)	Total Annualised CO ₂ (Reduction)/Increase (tCO ₂ eq) - Pfizer calculation method
Response to reduced manufacturing activity	CB2: Review potential to reduce CB2 energy	Shutdown CB2 power to minimise # HVAC and maintain plant GMP	Martin Corkery / Neil McCarthy	Complete	12/24/2008	-3,682	-2,161
EIRDATA report PLB0077-004-0Q	Chilled Water CUB: Review potential to reduce Energy / Green Belt Project (Rory Mee)	Lower Chilled Water Pressure control set-point	Rory Mee	In progress		-20	-23
EIRDATA report PLB0077-004-0Q	Chilled Water CUB: Review potential to reduce Energy / Green Belt Project (Rory Mee)	Chilled water (CUB) / Chilled Water loop Temperature setting	Rory Mee	Complete	04/01/2008	-180	-106
General	Boilers Admin: Review potential to reduce Energy	LPHW Temperature reduction Admin building	Neil McCarthy	Complete	09/01/2008		
Energy Aspects review (2007) - Significance of energy use	VARA: Review potential to reduce Energy / Green Belt Project (Martin Corkery)	Focus on regeneration cycle optimisation	Martin Corkery	In progress		-300	
Energy Aspects review (2007) - Significance of energy use	Site-wide Nitrogen use: Review potential to reduce use of	6-sigma / reduce LTR Nitrogen use for TBIN	Collette Herbert	Complete			

	Gaseous-PSA Nitrogen / Black Belt Project (Collette Herbert)	processing						
EIRDATA report PLB0077-004-0Q (Jan 2008)	Syltherm CUB: Review potential to reduce Energy	Syltherm - Revised Syltherm chiller control system logic	Neil McCarthy	Complete	02/01/2008	-1,600	-939	
EIRDATA report PLB0077-004-0Q (Jan 2008)	Cooling Towers CUB: Review potential to reduce Energy	Cooling Tower Water(CUB) - Reduce from 4 to 3 cells operational	Neil McCarthy	Complete	03/01/2008	-600	-352	
EIRDATA report PLB0077-004-0Q (Jan 2008)	Cooling Towers CUB: Review potential to reduce Energy	Floating Set-point Control	Neil McCarthy	Complete	03/01/2008	-600	-352	
General	WWTP: Review potential to reduce Energy	WWTP: Improved Aeration Control	Jim O'Shea	Complete	03/01/2008	-240	-141	
General	Boilers CUB: Review potential to reduce Energy	Automate boiler feed forward pumps to operate only when required	Neil McCarthy	Complete	01/08/2008			
Energy Aspects review (2007) - Significance of energy use	Technical Building: Review potential to reduce Energy / Green Belt Project (Nicola O'Connell)	IS393 / Technical Building / Reduce water circuit flow in primary chilled water loop	Nicola O'Connell	Complete	01/01/2008	-175	-103	

Energy Aspects review (2007) - Significance of energy use	Technical Building: Review potential to reduce Energy / Green Belt Project (Nicola O'Connell)	6 Sigma / Technical Building Energy - Modify chiller control settings	Nicola O'Connell	Complete	01/01/2008	-30	-18
Energy Aspects review (2007) - Significance of energy use	Technical Building: Review potential to reduce Energy / Green Belt Project (Nicola O'Connell)	LPHW Temperature reduciton Technical building	Nicola O'Connell	Complete	09/01/2008		

Drug Product Energy Efficiency Audits:

Summary

Condition 7.1 of the IPPC Licence (P0010 - 04) requires the Pfizer LODP plant to undertake an energy efficiency audit of the site within 1 year of the granting of the licence.

The LODP plant has, in fact, commissioned EIRDATA to conduct a number of energy efficiency audits of the plant and their key recommendations are summarised below.

These recommendations are managed through energy conservation projects listed in the plant's Environmental Management Plans.

Review of Clean-room Specifications – June 2008

An audit was carried out to calculate the normal operating costs of all air handling units and exhaust fans and to identify opportunities for improvement.

It recommended the following energy savings initiatives (based initially on one air handling unit):

- Reducing air changes per hour by 50%
- Raising the relative humidity to 60%

Air Handling Unit 904 Detailed Study – January 2008

This audit specifically looked at this unit's energy consumption and humidity control.

No recommendations emanated from this study.

Electrical Balance report – November 2007

EIRDATA looked at electrical consumption throughout the plant and listed a percentage breakdown per area / equipments category.

It recommended the following energy savings initiatives:

- Further assessment is required re: shut-down of production equipment during non-production hours.
- Shutting off of lighting in areas of non-occupancy
- Shutting down of HVAC equipment during non-production hours.

Compressed Air Survey report – March 2007

This survey focused on cost savings through reducing compressed air supply pressure to the plant.

It recommended that the air pressure be reduced from 7.5bar to 6.0bar (in 0.5bar increments) to achieve the necessary savings.

Appendix 16

Review of Residuals Management Plan

RMP 2009 Update Residual Management Plan

19 March 2009 Final

49340662 /



Project Title:

Report Title:

Project No:

Report Ref:

Status:

Client Contact Name:

Client Company Name:

Issued By:

RMP 2009 Update

Residual Management Plan

49340662

Final

Paraic Butler

Pfizer Ireland Pharmaceuticals

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CONTENTS

Section	Page No
LIMITATIONS.....	II
COPYRIGHT	II
1. INTRODUCTION.....	1
1.1. Requirement for a Residuals Management Plan	1
1.2. Basis for the RMP	2
1.3. Site Close-Down Scenario: Comments and Assumptions	3
1.4. RMP Report Structure	3
1.5. Final Validation	4
2. PIP SITE LOCATION AND HISTORY.....	5
2.1. Site Location	5

2.2.	Site History	5
2.3.	Site and Process Description	6
2.4.	Assessment of Potential Risks	9
3.	SCREENING AND OPERATIONAL RISK ASSESSMENT	11
3.1.	General	11
3.2.	Complexity	11
3.3.	Environmental Sensitivity	13
3.4.	Compliance Record	15
3.5.	Risk Category	16
4.	SCOPE OF RMP.....	17
4.1.	General	17

4.2.	Key Issues	17
4.3.	Exclusions From the RMP	18
5.	CRITERIA FOR SUCCESSFUL DECOMMISSIONING	19
6.	MANAGEMENT OF THE RMP.....	20
7.	PROGRAM TO ACHIEVE STATED CRITERIA.....	21
7.1.	Closure Plan	21
7.2.	Restoration and Aftercare Management Plan – Management of Potential Long Term Residual Soil and Groundwater Contamination	40
8.	TEST PROGRAM	48
9.	SUMMARY OF COSTS ASSOCIATED WITH THE RMP	49
10.	UNDERWRITING THE RMP – FINANCIAL PROVISIONS.....	50



CONTENTS

Section Page No

11. REVIEW OF THE RMP 52 APPENDIX A -SITE LAYOUT

APPENDIX B -GANTT CHART

1. INTRODUCTION

1.1. Requirement for a Residuals Management Plan

Pfizer Ireland Pharmaceuticals (PIP) was granted an Integrated Pollution Prevention and Control Licence (IPPC) (Reg. No. P0010-04) was issued by the Environmental Protection Agency (EPA) on the 03 October 2007 for:

“the use of a chemical or biological process for the production of basic pharmaceutical products”

and

“the recovery or disposal of waste in a facility, within the meaning of the Act of 1996, which facility is connected or associated with another activity specified in this Schedule in respect of which a licence or revised licence under Part IV is in force or in respect of which a licence under the said Part is or will be required”

Environmental management of the site is regulated by the conditions outlined in PIP's Integrated Pollution Prevention and Control Licence Reg. No. P0010-04.

Condition 10 of the IPPC license requires the preparation and submittal to the EPA of a Residual Management Plan (RMP). The specific requirements are as follows;

Condition 10. Decommissioning & Residuals Management

1. 10.1 Following termination, or planned cessation for a period greater than six months, of use or involvement of all or part of the site in the licensed activity, the licensee shall, to the satisfaction of the Agency, decommission, render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.
2. 10.2 Residuals Management Plan:
 1. 10.2.1 The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for the decommissioning or closure of the site or part thereof. This plan shall be submitted to the Agency for agreement within six months of the date of grant of this licence.
 2. 10.2.2 The plan shall be reviewed annually and proposed amendments thereto notified to the Agency for agreement as part of the AER. No amendments may be implemented without the agreement of the Agency.
 3. 10.3 The Residuals Management Plan shall include as a minimum, the following:-
 1. 10.3.1 A scope statement for the plan.
 2. 10.3.2 The criteria which define the successful decommissioning of the activity or part thereof, which ensures minimum impact on the environment.
 3. 10.3.3 A program to achieve the stated criteria.
 4. 10.3.4 Where relevant, a test program to demonstrate the successful implementation of the decommissioning plan.
 5. 10.3.5 Details of the costings for the plan and the financial provisions to underwrite those costs.
 6. 10.4 A final validation report to include a certificate of completion for the residuals management plan, for all or part of the site as necessary, shall be submitted to the Agency within three months of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the Agency, to confirm that there is no continuing risk to the environment.



Reason: To make provision for the proper closure of the activity ensuring protection of the environment

The original RMP report for the Loughbeg site was prepared in April 2008.

This report presents the first update of the original RMP, as required in Condition 10.2.2 of the site's IPPC license.

This report describes the PIP site-specific RMP and covers both the Active Pharmaceutical (API) and Drug Product (DP) facilities, collectively referred to as PIP or 'the Site' in this report.

The EPA Guidance Document entitled "Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provisions" (hereafter referred to the EPA Guidance Document) was used in the preparation of this Residuals Management Plan.

1.2. Basis for the RMP

The basis of this RMP is as follows:

- . • A review of the activities carried out at the site, including process and services;
- . • Identification of existing and potential hazards, including evaluation of materials and wastes generated;
- . • Consideration of historic environmental incidents and remediation works undertaken;
- . • Identification of all items of plant and other materials that may be decommissioned, rendered safe or removed from the site for disposal or recovery in the event of closure; and,
- . • Identification of locations where cleaning, decontamination or remediation works may be required in the event of decommissioning to prevent environmental pollution.



1.3. Site Close-Down Scenario: Comments and Assumptions

PIP Loughbeg is part of Pfizer Ireland Pharmaceuticals which is owned by Pfizer Inc. Pfizer Inc. is a multinational corporation with global revenues for 2008 of US\$48.3 billion and employing 87,000 people world wide.

In order to develop a fully costed RMP for the PIP site, a number of assumptions have been made with regard to the mode and management of a hypothetical site shut down.

The company operates a strict environmental policy. Therefore, any shutdown of the site will be a well-planned and well resourced event. This implies that the shut-down date will be known well in advance and that both production schedules and raw materials purchasing have been planned with the shut-down already factored in. It also implies that PIP will have the resources in terms of both financial inputs and manpower to implement the RMP through completion.

The first general assumption is that completion of the plan will result in a decommissioned and decontaminated site suitable for future industrial use, unless the site can be sold as a going concern to a third party, the nature of which will not trigger the decommissioning mechanism. All buildings, whilst emptied and cleaned as part of the RMP, will be assumed to remain in place following vacation of the site by PIP. Certain site areas will continue to operate or remain operational after site decommissioning. These include facilities such as the fire protection system, diesel supply to the back-up generator for the fire protection system.

The second general assumption is that all parts of the site are closed as part of one comprehensive RMP. No direct reference to partial closure is made in the RMP. The RMP and associated costs have been developed for a number of discrete program stages arranged in a logical sequence to facilitate complete site closure. The actual steps to be carried out and their associated costs for any partial shut downs may be derived from the RMP by simply reviewing that part of the RMP which covers that specific activity or land-parcel.

The third general assumption is that the RMP will be reviewed and updated as necessary, on an annual basis as part of the AER. The annual review of the RMP will take any changes in site status into consideration and incorporate current planned activities.

1.4. RMP Report Structure

The structure of the RMP is outlined as follows:

Section 2 provides an evaluation and overview of the main site and surrounding history and describes items such as buildings, activities and issues on the existing sites, which are covered in the plan.

Section 3 describes the initial screening and operational risk assessment carried out for the PIP facility.



Section 4 outlines the scope of the RMP, the type of closure envisaged and any exclusions in the RMP.

Section 5 describes the proposed criteria to be used to demonstrate successful decommissioning and decontamination.

Section 6 outlines management responsibilities for the implementation of the plan.

Section 7 describes the RMP in a Project Management style with discrete stages and associated tasks. Two programs are considered:

1. **1. *Closure Plan (CP)*** -the decommissioning and decontamination of all above and below ground structures – including management of residues arising at the site.
2. **2. *Restoration and Aftercare Management Plan (RAMP)*** – the management of any potential long-term residual soil and ground water contamination at the site.

Sections 8-9 provide a summary of the costs associated with implementation of the RMP, the provisions in place at PIP to underwrite the costs associated with the RMP and the need to review and update the RMP.

1.5. Final Validation

A final validation report including a certificate of completion for the residuals management plan, for all or part of the site as necessary, will be submitted to the Agency within three months of completion of the plan.

2. PIP SITE LOCATION AND HISTORY

2.1. Site Location

PIP is located on the Loughbeg peninsula, approximately 1.5 km south of Ringaskiddy village, in the southwest of the Cork Harbour. As described previously, the manufacturing site operates under a long leasehold (999 years) from the Industrial Development Agency and the site properties occupy a total surface area of approximately 174,000 m² (43 acres). There are two separate production facilities on the site, the API manufacturing facility where Active Pharmaceutical Ingredients (APIs) are bulk manufactured via batch chemical synthesis, and further south the Drug Product plant where one of the final drug products, Lipitor® is film coated in oral dosage form. A site location map is shown in Figure 1. Surrounding land use is as follows:

- North: Undeveloped land; immediately northeast of the site there is a medical device manufacturing facility De Puy.
- East: The eastern boundary of the site is fenced off from the foreshore and at the foreshore there is a beach that is used for recreation by the public;
- South: Cork Harbour. The Loughbeg DP facility has a separate site entrance and access road and is separated by the Loughbeg API facility by a fence;
- West: An access road to the Loughbeg DP facility runs along the western site boundary. To the south west of this the access road there is a car park for the Loughbeg DP facility, and to the north west and west is a beach facing a tidal inlet called Lough Moore (or also called Loughbeg). Across Loughmoore, there is a pharmaceutical manufacturing facility owned and operated by Glaxo Smithkline.

There are no residential housing developments, schools or medical facilities in the immediate vicinity of the site. The nearest sensitive building is a Martello Tower of historical interest. The tower is located on a small hill approximately 750 metres north from the site boundary. There is a single residential dwelling on the shores of Lough Moore approximately 500m to the north west of the site.

To the north west, within 50 metres of the site boundary, there is a small screen house and metering room for a Cork County Council foul sewer.

2.2. Site History

Prior to 1984, the peninsula on which the site is located was green field.

From 1984 (when the site was initially developed) to 1992 the site was owned and operated by Angus Fine Chemicals, which produced contract fine pharmaceuticals. In 1992, the site was acquired by Hickson International who continued to produce contract pharmaceuticals. In 1997, Warner-Lambert acquired the site from Hickson International and developed the site substantially in a project known as "Project Ireland". In 2000, Warner-Lambert merged with Pfizer who have owned the site since that date.



During “Project Ireland” (1997 – 2000) the following developments on the site were completed: _

- . • Expansion of CB1;
- . • Re-construction of CB2;
- . • Utilities Building;
- . • WWTP;
- . • Technical Building;
- . • Infrastructure; and
- . • The Loughbeg DP (Drug Product) – Tablet plant.

2.3. Site and Process Description

The principal current use, area and construction date of the main site buildings is summarized in Table 1. There are two notable milestones in the main site buildings construction:

1. 1. The original site development in the mid-1980’s when Angus developed the site; and
2. 2. The substantial expansion of the site by Warner Lambert between 1997 and 2000 when many additions were made (e.g., rebuilding of CB2 and provision of a new Utilities building).

Table 1: Site’s Main Buildings

Building	Construction Date	Approx. area (m ²)	Owned/Leased	Current Main Use
CB1	1985 & 2005 (CB1 Annex)	5,400 m ²	Owned	Process
CB2	1997	2,800 m ²	Owned	Process
LODP	2000	29,000 m ² (across four levels)	Owned	Process
Utilities	Old: 1985 New: 1997	4,000 m ²	Owned	Boilers, chiller systems, compressed air generation, water treatment.



Building	Construction Date	Approx. area (m ²)	Owned/Leased	Current Main Use
Technical Building	1997	2,200 m ²	Owned	Laboratories
SDD Building	2005	5,020 m ²	Owned	Process (currently not in use)
All Other Buildings	1985	4,500 m ²	Owned	Offices, canteen, storage, Locker room; Drum store; Main warehouse

2.3.1. API Facility

The API facility is an organic chemical synthesis plant that produces APIs in support of Pfizer's pharmaceutical manufacturing operations. The plant operates 24 hours a day, 7 days a week, 50 weeks per year. There is an approximately 2-week shutdown period each year for maintenance. There is a 4-shift cycle for production and engineering/maintenance.

Currently, the site manufactures the intermediates of Lipitor® (a cholesterol lowering drug). The site also produces Quinapril intermediates and the active pharmaceutical ingredient for Accupro.

There are two main production plants CB1 & CB2. Each building contains equipment typically associated with batch pharmaceutical manufacturing, including:

- Reactors of varying volume;
- Solvent distribution manifolds;
- Solids and liquids charging booths;
- Separation equipment (e.g., filters and centrifuges);
- Transfer vessels; and

• Dryers. There are also three Hydrogenation systems, two in CB1 and the third in CB2. Ancillary plant is located externally to each building, including emergency catch tanks for

pressure relief and a sump for accepting process wastewater from the building floor drainage system. Each building is connected to the wastewater treatment plant (WWTP), the tank farm, emissions to air abatement equipment and the Utilities buildings by means of a pipe rack.



There are also two liquefied nitrogen storage tanks located outside of CB1 to facilitate cryogenic reaction conditions for production operations in CB1.

The SDD facility (Spray Dried Dispersion) was commissioned during 2006, but it is not currently in use. This facility includes physical processes such as dissolution and drying.

A site layout plan is presented in Figure 2. The site properties currently include:

- . • Administrative offices / canteen;
- . • The EHS department building and adjacent to this a small fire station;
- . • A security building;
- . • Three production facilities (CB1, CB2 and the newly constructed Spray Dried Dispersion, or SDD, plant);
- . • An enclosed drum store;
- . • An uncovered drum compound;
- . • The main warehouse;
- . • A building designated as ‘Projects Store’ which is used to house miscellaneous engineering and equipment supplies;
- . • An environmental laboratory;
- . • Two utilities buildings, including engineering offices and associated workshops;
- . • Two thermal oxidisers (although only one being used) and a carbon adsorb/desorb system for chlorinated solvent rich vent gases;
- . • A tank farm and water storage tanks;
- . • A Waste Water Treatment Plant (WWTP);
- . • Two fire water retention ponds (one called the South Pond and the other the North Pond);
- . • A Technical building containing the Process Development Centre, Quality Control Laboratory, Technical Services Laboratory and Quality Assurance offices;
- . • A locker room that was once a laboratory; and
- . • General storage and waste storage areas.



2.3.2. Drug Product (DP) Facility

The facility consists of one large building that has 29,000 m² of floor space (on four levels). The facility is a “state of the art” production environment manufacturing high volumes of pharmaceutical product in solid oral dosage form. The plant produces, film coated Lipitor tablets in three dosage strengths, 10mg, 20mg, and 40mg. Currently tablets are shipped off site in bulk for packaging. The DP manufactures 24 hours a day, 5 days a week with a skeleton engineering and security crew manning the site at weekends. There is a 3 x 12hr shift pattern operating the manufacturing process with the facilities engineering team supporting the process operate a 4 x12hr shift pattern. There is no annual shutdown in the DP.

There are four main process steps (unit operations) that take place in Drug Product manufacture. The production process is solvent-free.

They are:

1. 1. Chemical Weighing
2. 2. Granulation/Fluid Bed Drying/Milling (GFM)
3. 3. Tablet Compression
4. 4. Film Coating

The finished tablets are filled into bulk containers and stored temporarily in the warehouse until approved for shipment. They are then shipped to other Pfizer facilities for packaging.

The majority of the combined API and DP site falls within the fenced area except the car park and security building adjacent to which there is a contractors compound. Also outside the fence, east from the car park, is a main gas compound, owned and operated by Bord Gais (the national Gas Distribution company).

2.4. Assessment of Potential Risks

The implementation of the RMP at PIP may in itself create environmental risks. Therefore, prior to decontamination and decommissioning operations, appropriate risk assessments will be carried out, involving all parties to the decommissioning process (senior PIP management, disposal contractors, process decommissioning contractors, etc). This assessment will identify potential risks associated with implementation of the RMP, which may include but is not limited to the following:

- . • Inadequate bulk storage of wastes prior to off-site disposal,
- . • Inadequate bunding of liquid wastes prior to collection by waste contractors,
- . • Structural hazards (e.g. overhead/underground services), and
- . • Health and safety hazards.



Such risk assessments cannot be carried out until such time as actual decommissioning is about to take place since site conditions may be different to what is presented in this report and contractors involved in the decommissioning process cannot be identified until that point.

3. SCREENING AND OPERATIONAL RISK ASSESSMENT

3.1. General

As a starting point in the process, a relatively simple risk assessment decision matrix can be used to classify sites according to Low, Medium and High risk and thereby select the specific RMP and Financial Provision (FP) requirements that will be needed. The risk assessment decision matrix outlined in the EPA RMP Guidance Document 2006 was used.

The risk assigned to the facility depends on the complexity of operations at the site, the environmental sensitivity of the receiving environment and the compliance record (compliance history) of the facility.

- f* **Complexity** – the extent and magnitude of potential hazards present due to the operation of the facility (e.g. a function of the nature of the activity, the volumes of hazardous materials stored on site etc.). A Complexity Band (G1 least complex to G5 most complex) for each class of activity has been assigned and included in a Look-Up Table (Appendix B of the EPA RMP Guidance Document 2006).
- f* **Environmental Sensitivity** – the sensitivity of the receiving environment in the vicinity of the facility, with more sensitive locations given a higher score (e.g. the presence of aquifers below the site, groundwater vulnerability, the proximity to surface water bodies and their status, the proximity to sensitive human receptors, etc). The Environmental Sensitivity is calculated on a site-specific basis using a sub-matrix (Table 3.1).
- f* **Compliance Record** – the compliance history of the facility.

Each aspect is multiplied to give the **Total Score** for the facility, and this can be used to place the facility into an appropriate Risk Category as follows:

- Risk Category 1 = Score < 5
- Risk Category 2 = Score 5 - 23
- Risk Category 3 = Score > 23.

Once this has been completed, the licensee proceeds through the relevant steps of RMP and FP that are considered appropriate for the Risk Category.

3.2. Complexity

Significant work has been done by the Environment Agency (England and Wales) in the development of the Environmental Protection Operator and Pollution Risk Appraisal (EP OPRA) methodology for classifying activities, and a similar but shortened version of this methodology has been developed for this process. Where available, Complexity Bands have been derived, from similar classification in the EP OPRA Complexity Score. A look up table for Irish activities has been included in Appendix B of the EPA's RMP Guidance Document 2006.

In October 2007, PIP were granted a revised IPPC License Registration No. P0010-04. PIP is classed under section 5.16 and 11.1. The relevant complexity band for PIP according to the EPA's ELRA Guidance Document 2006 is detailed in the table as follows:

Table 3.1 IPPC Activities and Complexity Bands IPPC Category	Activity	Relevant PIP Complexity Band
5.16	the use of a chemical or biological process for the production of basic pharmaceutical products	PIP produces <2000 per annum (between API's and Tablets) and therefore it is assigned Complexity Band G3
11.1	the recovery or disposal of waste in a facility, within the meaning of the Act of 1996, which facility is connected or associated with another activity specified in this Schedule in respect of which a licence or revised licence under Part IV is in force or in respect of which a licence under the said Part is or will be required.	- Pfizer applied for biological treatment of wastewater from other sites. This is covered by WMA 1996, Waste Disposal Activity 6, "Biological treatment ...which results in final compounds or mixtures which are disposed of by means of any activity....", G3; - Pfizer applied for dewatering of wastewater treatment plant sludges from other sites as well as drum crushing and dechimbing of fibre kegs (all <20tpd). This is covered by WMA 1996, Waste Disposal Activity 7, "Physio-chemical treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity..." G2; - Pfizer applied for the storage of waste drums & solid waste.



This is covered by WMA 1996, Waste Activity 13 "Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule.." **G4**, since < 10,000 tpa, hazardous.

The highest complexity band assigned to PIP is **G4** and therefore it receives a score of 4 according to the ELRA Guidance Document.

3.3. Environmental Sensitivity

A sub-matrix for environmental sensitivity is outlined in Table 3.3. This considers 6 key potential environmental receptors and assigns individual scores that are added together to arrive at a total environmental attribute score.

The scoring system used is outlined in EPA RMP Guidance Document 2006. The total environmental attribute score is used to look up the environmental sensitivity classification in Table 3.2 below. The environmental sensitivity sub matrix has been developed based on professional judgment and with reference to the system designed in the EP OPRA Scheme by the UK Environment Agency. The environmental sensitivity classification is used in the operational risk assessment to calculate the total score.

The key receptors include:

- . • Human Beings;
- . • Groundwater;
- . • Surface Water;
- . • Air Quality;
- . • Protected Ecological Sites;
- . • Sensitive Agricultural Receptors.

Table 3.2 Environmental Sensitivity Classification Total Environmental Attribute Score	Environmental Sensitivity Classification
Low <7	1
Moderate 7-12	2
High >12	3

Table 3.3 Environmental Sensitivity Sub-Matrix Environmental Attribute	Environmental Attribute Score Note 1
Human Occupation <50m 50m-250m 250m–1,000m >1km	5 3 1 Note 2 0
Groundwater Protection Regionally Important Aquifer Locally Important Aquifer Poor Aquifer Vulnerability Rating – Extreme Vulnerability Rating – High Vulnerability Rating -Moderate Vulnerability Rating - Low	2 1 Note 3 0 3 Note 4 2 1 0
Sensitivity of Receiving Water Class A Class B Class C Class D Designated Coastal & Estuarine Waters Potentially Eutrophic Coastal & Estuarine Waters	3 2 1 0 2 1 Note 5
Air Quality & Topography Complex Terrain Intermediate Terrain Simple Terrain	2 1 0 Note 6
Protected Ecological Sites Within or directly bordering protected site <1km to protected site >1km to protected site	2 Note 7 1 0
Sensitive Agricultural Receptors <50m from site boundary 50m-150m from site boundary >150m from site boundary	2 1 0 Note 8

Note 1 – The scoring system used is taken from the EPA ELRA Guidance Document 2006. The environmental attribute which is relevant to the PIP facility is underlined and bold.

Note 2 – The nearest sensitive residential is on the west side on the strand between GSK and PIP. This building is a approximately 500 metres west of the site.

Note 3 and 4 – Geological Survey of Ireland, Groundwater Web Mapping Site. Website: <http://www.gsi.ie>.

Note 5 – Parts Inner Harbour (Lough Mahon) are classed as potentially eutrophic (EPA Water Quality in Ireland, 2006).

Note 6 – The site is surrounded by relatively flat terrain.

Note 7 – Cork Harbour, directly East and South of the site, is a Special Protection Area, supporting in excess of 20,000 wintering waterfowl (www.npws.ie).

Note 8 – There is no agriculture practised within 150m of the site boundary.



Based on the above Environmental Sensitivity Sub-Matrix, the total environmental attribute score for PIP is 8 which indicates that the Environmental Sensitivity Classification for the site and surrounds is 2.

3.4. Compliance Record

The compliance record score is derived from the compliance history of the facility and whether the activities carried on resulted in contamination or pollution.

For newly licensed facilities and those operating without non-compliance of emission limits, then these are classified as **Compliant/New Facility** and have a score of 1.

Licensed facilities with administrative non-compliances only are classified as administrative non-compliant and have a score of 2.

Licensed facilities with minor non-compliances (< 5 non-compliances in 12 month period) are classified as being **Minor Non-Compliant** and have a score of 3. Facilities with minor soil and groundwater contamination (i.e. those with concentrations above background but not posing risk to the environment) are also considered in the class.

Licensed facilities with major non-compliance history ($\geq$ 5 non-compliances in 12 month period) and/or those with significant soil and groundwater contamination (i.e. requiring remediation and/or long-term monitoring requirements) are classified as **Major Non-Compliant/Significant Ground Contamination** and have a score of 4.

Those facilities with repeated non-compliances (>10 Total) during a 12-month period are classified as **Repeat Non-Compliance** and have a score of 5.

Documentation relating to IPPC licence compliance was reviewed to determine the past and present level of compliance with the PIP's IPPC Licence. This documentation review demonstrated that PIP had a good record of compliance with the conditions outlined in the IPPC License until 2007. In the past four years there have been 14 non-compliances with the IPPC License scheduled emission limit values (ELV's) in relation to emissions to sewer (0 in 2005, 0 in 2006, 3 in 2007 and 11 in 2008). The four non-compliances for emissions to sewer in 2008 related to one ammonia exceedance in January, an impaired clarifier issue in March, a dryer issue associated TOC exceedance in June and a suspended solids exceedance in July.

In addition a number of TO bypasses, there has been a non-compliance in relation to emissions to air in 2008 – an exceedance of Total Organic Carbon. There were no non-compliances in relation to emissions to surface water between 2005 and 2008.

No other significant reportable incidents have occurred at the site over the previous 4 years.

Between January 2005 and December 2008, the site received a total of five complaints (two noise complaints and one complaint relating to smoke in 2005, two odour complaints in 2006 and none in 2007 or 2008). In all cases PIP either resolved these issues to the satisfaction of the EPA or were not the responsible party.



There is a known groundwater contamination issues at the site. Organic solvents have been detected in groundwater in the east of the site around extraction wells EW2 and EW4, principally chlorobenzene. This is further discussed in Section 7.2.

The site can be described as non-compliant due to the site's 2008 compliance record. Also, there is known soil and

groundwater contamination (See Section 7.2), hence, a pollution record score of 4 is assigned.

3.5. Risk Category

The proceeding subsection of this section has determined the:

Complexity Score (G3) = 4

Environmental Sensitivity Score = 2

Compliance Record Score = 4

The product of these scores is used to calculate a total score, which is then used to assign the site specific risk category (Table 3.4). The product of the above scores is 32, which according to Table 3.4 below indicates that Risk Category 3 is applicable to the PIP Site.

Table 3.4 – Risk Category Risk Category	Total Score
Category 1	<5
Category 2	5-23
Category 3	>23

The PIP site is classified in Risk Category 3 which infers the overall risk of the facility is high. The EPA guidance Document requires Category 3 sites with known groundwater contamination to prepare a site-specific Closure Plan and an Aftercare Management Plan. A Closure Plan for the site is presented in Section 7.1, and an Aftercare Management Plan for the site is presented in Section 7.2.



4. SCOPE OF RMP

4.1. General

The proposed RMP addresses both short/medium-term (Closure Plan) actions and a longer-term programme (Restoration and Aftercare Management Plan). Together, these form the Closure, Restoration and Aftercare Management Plan (CRAMP) for the site.

The Closure Plan will involve decommissioning and decontamination of all process related structures currently used for production activities.

This will involve decommissioning and decontamination of:

- . • All production buildings;
- . • All service areas;
- . • All storage areas;
- . • All residuals arising as a direct result of decommissioning;

The RMP will also address any medium to long-term issues (Restoration and Aftercare Management Plan) associated with residual soil and groundwater contamination that may have resulted from the history of activities across the lands owned by the company.

Figure 2.1 (see Appendix A) is a site plan of the main site owned by PIP. This site plan identifies the main process areas.

4.2. Key Issues

The principal issues to be considered in the RMP for PIP are identified as follows:

- . • Safe removal and disposal from the site of all Active Pharmaceutical Ingredients (APIs) and materials which may be contaminated with APIs;
- . • Safe removal and disposal from the site of hazardous waste such as residuals, un-used raw materials, fuels, solvents, other chemicals, etc;
- . • Cleaning of bulk storage tanks;
- . • Cleaning of process transfer lines;
- . • Drainage line cleaning; and
- . • Decommissioning of site utilities.

Site operations generate hazardous and non-hazardous waste. The types of waste generated are outlined in Section 7 of this report. The amount of waste generated will increase significantly during implementation of the RMP with the following being of particular significance:



- . • Hazardous materials such as obsolete raw materials, chemicals, hazardous liquid wastes from cleaning operations, etc.;
- . • Non hazardous wastes;
- . • Additional hazardous wastes that may arise during decommissioning are as follows:
 - a. ○ Ductwork contaminated with API's;
 - b. ○ Equipment contaminated with API's.

Any waste arising during decommissioning will be managed in accordance with Condition 8 of IPPC License Reg. No P0010-04 as outlined below:

1. *8.1 Disposal or recovery of waste on-site shall only take place in accordance with the conditions of this licence and in accordance with the appropriate National and European legislation and protocols.*
2. *8.2 Waste sent off-site for recovery or disposal shall be transported only by an authorised waste contractor. The waste shall be transported from the site of the activity to the site of recovery/disposal only in a manner that will not adversely affect the environment and in accordance with the appropriate National and European legislation and protocols.*
3. *8.3 The licensee shall ensure that waste in advance, of transfer to another person shall be classified packaged and labelled in accordance with National, European and any other standards, which are in force in relation to such labelling.*
4. *8.7 Waste for disposal/recovery off-site shall be analysed in accordance with Schedule C: Control & Monitoring of this licence.*

The environmental monitoring programme conducted at PIP is in accordance with the requirements of Condition 6 of IPPC License Reg. No P0010-04. Emission limits values and monitoring requirements in accordance with Schedule B and C are designed to identify any impacts associated with operation of the site so as to avoid environmental pollution.

A programmed of post close intrusive investigation is outlined in section 7.2 should a post closure plan be needed at the time of closure.

4.3. Exclusions From the RMP

- . The following items are excluded from the scope of this RMP
- . • Costs for building demolition and uncontaminated equipment removal.
- . • The costs of removing above and below ground structures.

The only exception is where buildings and/or structures have to be removed to either assess residual soil and groundwater (S&GW) contamination or for the implementation of the S&GW remediation program – see Section 7.2.



5. CRITERIA FOR SUCCESSFUL DECOMMISSIONING

The criteria for successful decommissioning to ensure minimum impact on the environment with respect to residuals management are as follows:

1. 1. The decontamination of all process equipment.
2. 2. Documented and fully costed reports to ensure that all raw materials and finished product have been dispatched from the site.
3. 3. Documented and fully costed reports on the disposal of hazardous waste including full certification required under law (Trans-frontier Shipment of Hazardous Waste Regulations, 1998, Waste Management Act, 1996 and any amendments to waste legislation, and the company's IPPC Licence).
4. 4. Documented and fully costed reports on the disposal of non hazardous wastes including all certification required under the Waste Management Act and IPPC licence.
5. 5. Documentation relating to the proper management, and if necessary removal, of asbestos containing materials.
6. 6. Documentation relating to the proper management, and if necessary removal, of PCBs/PCTs.
7. 7. Removal of radioactive sources (if present) and disposal by contractors licensed by the Radiological Protection Board.
8. 8. Remediation of site soil and groundwater to pre-determined, risk based, remedial goals, agreed with the EPA and verified by a program of groundwater monitoring post corrective action.

Note that, with respect to the above criteria, the costs and time to complete decommissioning should not exceed that estimated in the most up-to-date revision of the Residuals Management Plan in place at the time of decommissioning.



6. MANAGEMENT OF THE RMP

The overall responsibility and management of the RMP will be undertaken by designated members of site management, other relevant company personnel etc. Responsibilities of this technical team will be formally defined. Prior to commencement of the RMP, this team will be established.

The selection of personnel to form this team will adequately address the important aspects of the RMP including financial management, environmental management etc. All decontamination procedures, decommissioning operations and residuals management, as required under this RMP will be authorised by the team.

In addition, the team will nominate a company co-ordinator to conduct all necessary communications with relevant authorities and ensure the appropriate information transfer.



7. PROGRAM TO ACHIEVE STATED CRITERIA

7.1. Closure Plan

7.1.1. General

The Closure Plan involves the decommissioning and decontamination of all above and below ground structures – including management of residues arising – at the main site.

The structure of the Closure Plan included in this RMP is based on a logical sequence of events (project milestones) that would occur in the event of a shutdown, similar in logic to an annual maintenance shutdown. However, the end point would be the removal of all materials from the site that could pose a residual threat to the environment. All remaining structures/buildings would be in a steady-state and safe condition.

Below ground structures, in-ground sumps, drains and transfer lines, are dealt with in Phase 1 only in relation to decontamination of internal surface areas i.e. emptying and flush/rinse etc. Issues associated with removal of structures that may be required for assessment of soil/groundwater contamination are dealt with in Restoration and Aftercare Management Plan.

The program is constructed in a Project Management style format with a number of stages, each with a set of specific tasks that involve the management of residual waste. The individual stages are in a logical sequence however, some overlap in terms of timelines is expected.

The individual stages are: Stage 1: Production decommissioning, including transfer of residuals to on-site storage; Stage 2: Removal of excess raw materials and final product from the site; Stage 3: Removal of production related hazardous/non-hazardous wastes from the site; Stage 4: Cleaning of tanks, bunds, sumps and interceptors; Stage 5: Removal of non-process related materials and non-hazardous wastes; Stage 6: Decommissioning of site services; Stage 7: Decommissioning of the Equalisation Tanks and Wastewater Treatment Plant; Stage 8: Removal of residual hazardous materials (non process related); and, Stage 9: Documentation and certification of decommissioning and decontamination.

Each stage is considered under the following headings:

- . • Tasks to complete stage;
- . • Cost to complete;
- . • Time to complete; and,



- Plant status at completion of stage.

Please refer to Appendix B (Gantt chart with stages/tasks and timelines).

7.1.2. Stage 1: Production Decommissioning

This stage will be applied to:

- CB1;
- CB2;
- The DP plant;
- Technical Building (laboratories) and
- Spray Dried Dispersion (SDD).

With regard to programs for production decontamination, it is considered that many such programs are currently in place due to the strict cleaning regimes and regulatory and legislative requirements in force (e.g., post-batch clean downs). These programs can be utilised or adapted for use as part of RMP implementation.

Furthermore, site utilities required for decontamination and decommissioning procedures are considered to be readily available on-site for utilisation during implementation of the RMP.

In the event of a plant shut down, it is assumed that all raw materials are processed through the individual production areas.

The production areas are now considered in more detail with particulars taken from site documentation on standard operating procedures for equipment cleaning operations and corporate procedures on decommissioning.

There are three hydrogenation systems on the site. The hydrogenation systems employ either palladium catalyst or nickel catalyst. It is estimated that a total of 10 tonnes of catalyst will be removed and disposed of as hazardous waste.

An estimated cost of **€20,000** has being included for this item.

Stage 1 - Task 1: Cancellation of incoming materials

As stated previously, it is assumed that any shutdown of the site will be a well-planned event. This implies that the shut-down date will be known well in advance and that both process schedules and inputs of raw materials have been planned with the shut-down already factored in.



All contracts relating to the delivery of supplies and materials will be cancelled. All contracts other than those that are concerned with the RMP or related to safety of personnel or the environment will be terminated.

Stage 1 - Task 2: Transfer all finished product to warehouse.

As stated above, it is assumed that all raw materials are processed through the individual production areas of the facility, with any remaining quantities retained in typical storage.

Residual final products must be labelled appropriately and transferred to to designated storage areas. Any defective products must be transferred to suitable on-site storage prior to off-site disposal.

Stage 1 - Task 3: Transfer of raw materials & process materials to storage.

It is assumed that processing operations are complete and activities have ceased in each process area.

All pipelines, vessels and systems should be empty of raw materials, intermediates and products.

Raw materials including APIs, chemicals, excipients and other substances remaining in process areas will be transferred to suitable storage containers and removed for suitable storage on site (i.e. the warehouse, on-site chemical stores, etc.).

Stage 1 - Task 4: Transfer of production liquid wastes.

During the course of the decommissioning process, production liquid waste suitable for treatment at the on-site Wastewater Treatment Plant (WWTP) will be discharged to the onsite contained sewer collection system and treated prior to discharge to the Cork County Sewer and ultimately to Cork Harbour under the terms of the IPPC License (Condition 5 and 6 and Schedule B & C of IPPC License Reg. No P0010-04).

Hazardous liquid wastes unsuitable for release to sewer will be stored into appropriate drums and transferred to hazardous waste storage area for off-site disposal by a licensed contractor. Table 7.1.4.1 summarises the residuals expected to arise.

Stage 1 - Task 5: Transfer all production solid wastes, hazardous and nonhazardous, to drum storage or other suitable storage facility.

This task will include the specific transfer of hazardous and non-hazardous solid waste to appropriate storage on-site, as follows:

- . • Transfer of all properly labelled containers of waste – contaminated packaging, solvent wipes, disposable masks and gloves, material cleaned from process areas, etc. to a suitable storage facility.
- . • Create an inventory of obsolete solid chemicals, product samples and raw material samples in the laboratories and transfer to waste storage in accordance with appropriate standard operating procedures (SOP's).
- . • Transfer of empty drums and containers to dedicated storage in suitable storage area.
- . • Removal of general waste, e.g. uncontaminated packaging, canteen waste, metals to site storage facilities.



Stage 1 - Task 6: Decontaminate as required.

Decontamination of all process equipment, interconnecting pipework and storage systems will be undertaken in accordance with internal Pfizer standards and safe working procedures. It is noted that, due to FDA requirements, such decontamination is routine between production runs and between batches so no significant change to that approach would be envisaged on decommissioning.

Most aqueous liquid streams would be discharged directly to the process effluent drainage network, transferred to the effluent balance tank for pH adjustment and discharged to the sewer under the terms of the IPPC License.

Process wastewater containing hazardous materials may be produced during specific cleaning operations. This contaminated wastewater will be collected in accordance with site procedures, and stored in suitable containers on-site prior to disposal off-site by approved waste contractors.

Contaminated solid waste arising from wipe-downs of equipment etc. will be collected in drums as hazardous waste and disposed offsite accordingly.

This task specifically includes:

- . • Execution of site decontamination procedures for all potentially contaminated equipment.
- . • Removal as necessary of lubricating oils, and greases from machinery.
- . • Cleaning of production building materials in contact with any product or raw material.
- . • Purging of transfer lines and vessels in contact with materials, as appropriate.
- . • All external surface areas and floors in the process area will be washed down.
- . • There may be some parts of the general ductwork system, which requires decommissioning, with subsequent, cleaning removal and disposal by licensed contractors as necessary.
- . • Any solvent contaminated gaseous streams, generated during the process will be treated in the VOC abatement facilities.

Stage 1 - Task 7: Decontamination testing.

Designed on a case by case basis, a testing protocol will be implemented to include sampling of representative areas of the cleaned plant/equipment using wipe/swab sampling of the equipment, followed by analysis for the detection of the various APIs. The acceptance criteria for the cleaning process and the subsequent classification of equipment as nonhazardous material for reuse/recycling/disposal are that the level of API must be below the limits of detection for the test method for individual APIs.



Equipment/Plant which does not meet the required criteria will be disposed off-site as hazardous waste using licensed waste management contractors.

There is no cost associated with Stage 1 task 7 as all testing would be done in laboratories on site.

Stage 1 -Task 8: Isolate from steam, compressed air, heating, ventilation & air conditioning (HVAC) and other utilities available.

There are no specific residuals associated with this stage as this is just a physical disconnection step. However, some utilities may be retained for later decommissioning stages. At a minimum it is envisaged that the following steps will be carried out:

- . • Electricity: Power supplies may be isolated at the main transformer switches.
- . • Water: Potable water supplies to the processing area may be isolated by shutting down the pumps at the potable water break tanks.
- . • Steam: Steam Lines can be isolated by closing the main steam distribution valves.
- . • Air: Airlines may be isolated by closing the main air distribution valve.
- . • Nitrogen: Nitrogen lines may be isolated by closing the main nitrogen distribution valves.

Stage 1 - Task 9: Transfer resulting wastes, hazardous and non-hazardous to appropriate storage areas.

This task will include the specific transfer of resulting hazardous and non-hazardous waste to appropriate storage on-site, as follows:

- . • Removal of all dust collectors from air abatement systems and vents to specially labelled containers and transfer to dedicated storage.
- . • Remove any solid residues from the solvent abatement system and transfer to the drum storage area for off site hazardous disposal.
- . • Purge all solvent manifolds to appropriate storage areas.
- . • Remove product and intermediate samples to appropriate storage areas.
- . • Remove chemicals from all laboratories to appropriate storage areas.
- . • Remove any waste produced during decontamination and cleaning activities to appropriate storage.



Plant Status at Completion of Stage 1

Following successful completion of Stage 1 (Tasks 1 – 8), the plant status is as follows:

- All site production equipment decontaminated and in a “safe to work” (and environmentally secure) state.
- All production related residuals transferred to storage or warehouse.
- All auxiliary systems decommissioned and working mediums, e.g. oils, removed from production buildings to storage.

Time to Complete

It is estimated that Stage 1 would take approximately 4-5 weeks to complete utilising the full compliment of production and maintenance staff at PIP. Where necessary, external contractors will assist in the decommissioning and decontamination operations.

Budget Cost Estimate

As described in Section 1.2 it is assumed that the shutdown is a well-planned and resourced event and all costs in terms of manpower will be allocated to normal plant running costs for the period in question. As a result the majority of costs associated with Stage 1 (i.e. manpower costs) are excluded from this RMP. Other costs associated with Stage 1 including the removal of the hazardous liquid wastes residuals expected to arise during Stage 1, Task 4 are included in Table 7.1.4.1 in Stage 3 – Removal of Production Related Hazardous/Non-Hazardous Wastes.

It is anticipated that plant and equipment hire may be required for various decommissioning procedures, therefore a provisional and contingency (PC) sum of approximately **€80,000** may be used as necessary. Furthermore, costs associated with facility ductwork cleaning and possible disposal, which may vary and therefore a PC sum of **€300,000** is provided for such work.

7.1.3. Stage 2: Removal of Excess Raw Materials and Final Product.

Stage 2 - Task 1: Dispatch of intermediates and finished product from final production to customers.

In line with normal production scheduling, all product will be distributed and sold or dispatched to another Pfizer facility.

Task 2: Shipping of excess raw material off-site



Under normal operating conditions, the raw materials outlined in Table G.1 of the IPPCL application, would be present on site. From the Tables G.1, it can be estimated that 1,700 tonnes of raw materials, primarily organic solvents would be present on site.

Raw material purchase is planned on a schedule directly related to the planned production schedule. As the date for plant shut-down will be known in advance, it is assumed that stocks of raw materials will be reduced accordingly. For the purposes of the RMP, it is assumed that the planned reduction in stocks reduces the inventory by 90% at shut down and that the remainder is shipped from the site as a hazardous waste. In the case of gases, it is assumed that any gas remaining following production may be returned to the supplier at a minimum cost. Treating the material as hazardous waste is the worst case scenario. In reality there will be alternative routes for this material including:

- . • Return of raw material to suppliers;
- . • Transfer of materials to other Pfizer sites in Ireland;
- . • Transfer of materials to recovery/recycling companies.

All of the above routes would result in considerable cost savings when compared to the “hazardous waste” route.

Based on an 90% reduction in inventory of raw materials prior to shut-:170 tonnes of raw materials will still be on site and will require disposal. The estimated costs for the disposal of the residuals from Task 2 are presented in Table 7.1.4.1.

Plant Status at Completion of Stage 2

The Warehouse, the Final Product Store and other raw materials storage areas will be clear of raw materials.

Time to Complete

The residuals set out above should all be removed over a 4-week period, allowing for documentation (including inventory lists) and arranging shipment.

Budget Cost Estimate

The costs associated with Task 1 are not considered as it is assumed that shipping costs will be absorbed as part of the net value of the intermediates and products. The estimated costs for the disposal of the residuals from Task 2 are presented in Table 7.1.4.1.

7.1.4. Stage 3: Removal of Production Related Hazardous/Non-Hazardous Wastes;

At this point, all substances that can be considered waste, either hazardous or nonhazardous, will have been placed in designated areas. The waste may include raw materials (detailed in Stage 2) that cannot be returned to suppliers or sold on to interested third parties.



In the case of hazardous waste disposal, all requirements of the current IPPC Licence will be considered, especially in relation to hazardous waste that is not scheduled on the IPPC Licence. Therefore, this waste will require the prior written approval of the EPA before the waste can be removed from the site.

Stage 3 will include the following tasks:

- . • Administrative organisation of shipments.
- . • Removal of the waste in accordance with appropriate National and EU Legislation.
- . • Administrative organisation of relevant paper work. All waste shipments during this period will be documented according to the EPA guidelines. This will facilitate the requirement to have stated criteria for proper decommissioning (see Section 5.0).

Tables 7.1.4.1 and 7.1.4.2 summarise the expected quantities of hazardous waste and non-hazardous waste respectively that are expected to be shipped from the site during decommissioning. The tonnage of waste in each case is based on 10% of the amount of waste disposed annually by PIP. The annual waste disposal figures employed for this exercise were determined in consultation with the waste data for 2007.

The cost is based on a flat rate of €1000 per metric tonne for transport and disposal of liquid hazardous waste and €1500 per metric tonne for disposal of solid hazardous waste. A flat rate of €500 per metric tonne for transport and disposal of non hazardous waste has also been applied.

Table 7.1.4.1. Hazardous Waste Inventory.

Waste Type	Amount (tonnes)	Estimated Cost (€)
Raw Materials Note 1	170	170,000
Reject Product and solid waste	16	24,000
Bulk solvent waste Note 2	250	250,000
Contaminated Drums and Packaging	20.5	30,750
Healthcare Wastes	2	3,000
Waste Electrical and Electronic Equipment (WEEE) Note 3	0.5	150
Waste Paints	0.2	200
Palladium and Nickel Catalyst	9.5	14,250
Redundant Laboratory Chemicals	0.4	400
Absorbent filter materials/cloths/PPE	2.5	3,750
Waste oils	0.3	300
UV Lamps/Fluorescent Tubes	1	1500
Batteries	0.2	300
Fire-fighting foam	2	3,000
Solid waste from TO support bed Note 4	10	20,000
Miscellaneous Waste Note 5	10	15,000
TOTAL	495.1	536,600

Note 1 -See Section 7.1.3, Task 2 for detail Note 2 – Based on 2% of the amount of waste disposed annually as the bulk solvent waste is continuously disposed of due to the lack of available storage. Note 3 – Disposal/recycling including transport costs are estimated to be € 300 per tonne. Note 4 - The cost for transport and disposal of solid waste from Thermal Oxidiser (RTO) support bed has been assumed to be €20,000. Note 5 – Whilst ever attempt to identify sources of hazardous material, it is expected that certain materials will only become apparent upon actually closure of the facility and therefore a contingency of 10 tonnes of miscellaneous hazardous material has been included.

Table 7.1.4.2. Non Hazardous Waste Inventory

Waste Type	Amount (tonnes)	Estimated Cost (€)
Construction and Demolition Waste	20	10,000
General Site Wide Municipal waste	22	11,000
Fibre Key Recycling	1	500
Steel Drums	2	1,000
Scrap Metal	12	6,000
Confidential Paper Waste	3.2	1,600
Cardboard and paper	9.6	4,800
Glass	1	500
Pallets	7.5	3,750
Food Waste	8.7	4,350
Waste Food Oil	0.3	150
TOTAL	87.3	43,650

7.1.5. Stage 4: Cleaning of tanks, bunds, sumps and interceptors; Cleaning of tanks

This stage is started when bulk storage begins to be emptied and with all virgin, waste and recovered solvents removed for return or disposal. At the site, there a number of above ground bulk storage tanks used for the storage of raw materials, waste, bulk caustic and fuel. The following tanks must be cleaned:

- . • Diesel Tanks x 2
- . • Bulk storage tanks x 43
- . • Slytherm and glycol storage tanks x 2
- . • Firewater Retention Tanks x 2
- . • Emergency Catch Tanks x 5

Cleaning of bunds, sumps, interceptors and drainage

There is one oil interceptor (which discharges to surface water) on site that will require specialist cleaning after the site closure. Drainage pipes leading to the interceptor also need cleaning.

There are several sumps on site associated with various facilities such as bulk storage, loading/unloading bays and surface water and effluent drainage. In total, approximately 22 sumps will require cleaning.



There are various bunds on site, associated with bulk storage, drums pads, diesel tanks etc. Approximately 50 bunds on site will require cleaning.

Some rinses from the bulk storage washing may be treated as hazardous waste.

Plant Status at Completion of Stage 4

All bulk storage on site decontaminated and residual materials collected by specialist cleaning contractors.

Time to Complete

It will take approximately 3 weeks to complete this stage. This stage can start after two weeks into Stage 3 – bulk liquid wastes.

Budget Cost Estimate Table 7.1.5.1: Estimate for cleaning of tanks, bunds, interceptors and sumps

Type	No. of units	Price per unit	Total
Bulk Tanks	51	€ 2,000	€ 102,000
Bunds	50	€ 1,000	€ 50,000
Interceptors	1	€ 2,000	€ 2,000
Sumps	22	€ 2,000	€ 44,000
TOTAL			€ 198,000

7.1.6. Stage 5: Removal of non-process related materials and non-hazardous wastes

This will be relatively limited in scope, comprising mainly of clearance of materials from the warehouse such as:

- Plastics and packaging
- Mechanical parts
- Protective clothing
- Miscellaneous These materials will be removed and disposed in accordance with legal requirements.

Stage 5 - Time to Complete

It is expected that this stage will take 2 weeks.



Stage 5 - Budget Cost Estimate

It is envisaged that a possible 1-3 tonnes of waste may arise, with an approximated cost of €2000 required for disposal.

7.1.7. Stage 6: Decommissioning of site services;

This stage of decommissioning will apply to the following site utilities, plus the site administration buildings:

- . • Emissions to Air Abatement Systems
 - a. ○ Thermal Oxidisers x 2
 - b. ○ Scrubbers
 - c. ○ Carbon Adsorption System

- . • Boilers (gas fired, steam boilers) x 4
- . • Condensate Tanks x 4
- . • Water Treatment Systems x 4
- . • Compressed Air System x 4
- . • Cooling Towers x 7
- . • Chiller Systems x 3 – 1 chilled water system, 1 ethylene glycol mix system and 1 glytherm system
- . • Cold stores x 2
- . • Nitrogen units x 4
- . • Some electrical transformers
- . • Fans, pumps and motors
- . • Maintenance workshop
- . • Laboratories
- . • Contractors compound
- . • Administration and control rooms

Emissions to Air Abatement Systems

A variety of abatement technologies are employed at the Loughbeg facility, such as wet gas scrubbers, HEPA filters, a carbon adsorption system (VARA system) and two thermal oxidisers (Durr and Thermatrix).



The scrubbers use various dedicated packed scrubbing columns and tanks. All scrubber and VARA system components will be flushed down to the on-site WWTP and the system will be mothballed. The carbon will be removed and disposed.

Decommissioning of the Durr (a regenerative TO) and Thermatrix (a recuperative TO) may involve the removal of unit internals in both units which will be disposed of as hazardous waste. A total of 10 tonnes of media is expected to require disposal (costs are included in Table 7.1.4.1).

All rinses from the incinerator abatement components will be directed to the onsite WWTP and the system will be mothballed.

A specialist external contractor will be employed to decommission the emissions to air abatement systems. An estimated cost of **€30,000** is included for this item.

The HEPA filters, primarily from the DP facility, will simply require removing filter elements as hazardous waste. Removed filters are included in Table 7.1.4.1.

Boilers

Three of the four gas fired steam boilers will be rendered safe by the existing contractors who are employed to service the units. An estimated cost of **€15,000** is included for this item. This figure includes the disposal costs of the chemical dosing plant but does not include any potential hazardous material which may be encountered. One boiler will be left active and will be maintained by a specialist contractor until such time as PIP operations resume or until the plant is sold to an interested third party.

Condensate Tanks

The four condensate tanks will be drained, cleaned and isolated. The condensate will most likely be treated as hazardous waste. The tanks will be isolated from power and utilities. An estimated cost of **€15,000** is included for these items.

Water Treatment System

The water treatment systems will be rendered safe by the existing contractors who are employed to service the units. Any chemicals associated with these systems can be returned to the supplier.

The only residuals which will be disposed off during this stage are the ion exchange resins and filters used in the treatment process. A PC sum of **€30,000** is included to cover disposal of these items.

Compressors

Compressors will be decommissioned and rendered safe by the contractors employed for maintenance purposes. An estimated cost of **€5,000** has being included for this item.

Cooling Towers



The cooling water and the seven cooling towers will be drained and isolated. The non-contact cooling water will be drained to the WWTP as a process effluent. The towers will be isolated from power and utilities. An estimated cost of **€40,000** is included for this item.

Chilled Water System

The chilled water system will be decommissioned and rendered safe by the contractors employed for maintenance purposes. An estimated cost of **€10,000** has being included to cover sub-contractor costs.

Chiller Systems

The plant has two heat transfer systems – an ethylene glycol system and a closed loop syltherm system. These will be decommissioned and rendered safe by the contractors employed for maintenance purposes.

Both the glycol ethylene mix and syltherm distribution systems will be drained and flushed back to respective holding tanks. The recovered liquids will be disposed of as hazardous waste.

An estimated cost of **€15,000** has being included to cover sub-contractor costs.

Cold Stores

There are two cold stores on site. Specialist contractors will be required to decommissioned these cold stores. A PC sum of **€15,000** has been included for this.

Nitrogen Plant

An external contractor will be employed to decommission four nitrogen storage tanks and on-site pressure swing adsorption plant. An estimated cost of **€4,000** has being included for this item.

Transformers

An external contractor will be employed to decommission the transformers. An estimated cost of **€2,000** has being included for this item.

Emergency/Back-up Generators

There is one back up diesel generator. This will be left active and will be maintained until such time as PIP operations resume or until the plant is sold to an interested third party.

Diesel Fire Pumps

Diesel fire pumps which serve the sprinkler systems will be left active and will be maintained until such time as PIP operations resume or until the plant is sold to an interested third party.

Fire Sprinkler System



The fire sprinkler systems will be left active and will be maintained until such time as PIP operations resume or until the plant is sold to an interested third party.

Fans Pumps and Motors

There are numerous fans, pumps and motors located throughout the main buildings. These will be maintained until such time as PIP operations resume or until the plant is sold to an interested third party.

Laboratories

It is assumed that most of the laboratory instruments may be reused as assets, however, there may be some instruments that will be deemed waste and disposed as Waste Electrical and Electronic Equipment (WEEE) covered in Table 7.1.4.1. Expired chemicals and laboratory waste disposal are also included in being included in Table 7.1.4.1.

Maintenance Workshop

The maintenance workshop contains some engineering equipment (welders, drills, angle grinders, etc.). Equipment may be removed from the site and sold and the majority of spares will be returned to the supplier or sold. Some equipment may become waste and disposed as WEEE. It is not envisaged that there will be any substantial cost involved however a sum of **€4,000** has been included for this item, which will cover possible waste disposal costs

Administration and Control Rooms

This includes the main administration building, the offices and all porta-cabins located on the site. At this stage, it is assumed that only partial administration facilities will be required for the remaining site decommissioning operations and the successful completion of the RMP. In addition to waste paper and other recyclables, a significant amount of WEEE will arise from the administration facilities. A worst case scenario would involve disposal of all electronic equipment in the administrations facilities. Current disposal/recycling and transport cost for WEEE is approximately € 300 per tonne. Approximately 10 tonnes of WEEE is expected to be found in the administration facilities. A cost of **€ 3,000** has been included for disposal of this.

There is also a significant quantity of WEEE located in the control rooms associated with the facility. It is estimated that there will be approximately 10 tonnes of WEEE generated during the decommissioning of the control rooms. A cost of **€3,000** has been included for this.

Contractors Compound

This compound is to be removed at the cost of the contractors. However, a PC sum of **€5,000** has been included for management of the removal process.



Plant Status at the Completion of Stage 6

All site utilities, labs and administration building with the exception of the effluent balancing tanks, effectively decommissioned.

Time to Complete

Utility decommissioning should not start until cleaning (Stage 4-5) has been completed. An overall estimate of the time to decommission all utilities is 3-4 weeks.

Budget Cost Estimates

The approximate cost for the decommissioning of site services is **€196,000**.

7.1.8. Stage 7: Decommissioning of the Waste Water Treatment Plant

As described in Stage 1, all wastewater suitable for discharge to sewer generated during the shut down will undergo treatment at the site's WWTP, in accordance with the conditions of the operating IPPC licence.

Effluent which is not suitable for treatment will be collected from the process areas, transferred to containers and stored on-site prior to off-site disposal.

The WWTP facilities would operate during the site decommissioning process.

The primary tasks in decommissioning would include:

1. 1. Flush all process lines to the equalization basins with fresh water (no surfactants).
2. 2. Flush equalisation tanks feed lines and isolate. Treat remaining effluent through pH neutralisation stage and onto the next stage of treatment.
3. 3. With submersible pumps or equivalent, pump the remaining contents of the equalisation tanks through to the next stage of treatment.
4. 4. Power clean equalisation tanks and pump washings through to further treatment stages in the WWTP. Decommission tanks and associated pipelines and pump stations.
5. 5. Treat washings through all stages of the wastewater treatment plant.
6. 6. With submersible pumps or equivalent, pump remaining contents of the aeration basins through to the clarifiers.
7. 7. Decommission both the aeration tanks and the clarifiers. Remove all sludge from these tanks and process in the sludge watering system.
8. 8. Discharge treated wastewater to the Cork County Sewer.
9. 9. Decommission the sludge de-watering system, including flushing out the centrifuges and rinsing out the (now depleted) polymer injection system.
10. 10. Empty the caustic and acid bulk storage tanks and return contents to the supplier.
11. 11. Power clean effluent collection tanks, caustic and acid tanks and balancing tanks. Decommission tanks and associated pipelines and pump stations.
12. 12. Decommission the WWTP laboratory;
13. 13. Decommission final discharge monitoring point (the Country Sump).



It is estimated that a total of 120 tonnes dried sludge would be generated during this activity (60 tonnes from the aeration and digestion system and 60 tonnes from the sludge handling system).

The principal costs in decommissioning of the on-site WWTPs are:

1. 1. Cleaning and flushing of the Equalisation Tanks. Estimate: **€10,000.**
2. 2. Disposal of sludges. It is estimated that 120 tonnes of dried WWTP sludge will require disposal during the decommissioning process. Based on a cost of €500 per tonne,-estimate: **€60,000.**
3. 3. Removal of residual chemicals: Estimate €0 – returned to supplier.
4. 4. Cleaning and flushing of wastewater treatment plant and pumping stations. Estimate: **€30,000.**
5. 5. Cleaning and flushing of sludge equipment. Estimate **€20,000.**

This gives a total consolidated budget cost estimate for the WWTP facilities decommissioning of **€120,000.**

Status at the end of Stage 7

Wastewater Treatment Plant decommissioned.

Stage 7 - Time to Complete

The wastewater treatment plant would be the final facility to be decommissioned at the end of the decommissioning process. An overall estimate of time to decommission the wastewater treatment plant is 3 weeks.

Stage 7 - Budget Cost Estimates

Decontaminating and decommissioning of the wastewater treatment plant and associated systems, requires an estimated **€120,000** to complete.



7.1.9. Stage 8: Removal of residual hazardous materials (Non process related)

This stage applies to the situation where there may be specific residuals associated with the building structure and plant equipment that may not be removed during an annual maintenance shutdown. This includes PCBs (if identified), asbestos containing materials (if identified), radioactive wastes (if identified), and fluorescent tubes but does not include for actual concrete that may be contaminated.

Task 1: Remove identified hazardous materials (asbestos/PCBs etc).

An asbestos survey was completed in 2000 by Enterprise Ireland (a Government Body). Free-formed gaskets were found to contain asbestos. Subsequently, these were disposed of appropriately. Of the examined areas no other asbestos was found on site. Hence, it is assumed there is no further asbestos on site.

There are no PCB's on site. Pfizer provided URS a copy of e-mail correspondence dating back to 2000 on PCB's. The correspondence states that all transformers, except one, on the site are of dry encapsulated manufacture and therefore do not contain oils that may contain PCB's. The exception to the dry encapsulated design was an oil filled transformer used as a temporary construction porta-cabin supply. Site management indicated that the transformer was subsequently removed.

Task 2: Remove and dispose of radioactive material and fluorescent tubing.

Spent fluorescent tubes will be removed from the site at site closure. However, much of the lighting will remain in place. It is difficult to estimate the number of fluorescent tubes that will be required to be removed and therefore a budget of **€500** is allowed for lamp disposal.

There are no radioactive sources on the PIP site.

Plant Status at Completion of Stage 6

All hazardous residual materials removed off-site.

Budget Cost Estimate

The overall cost estimate for removal of residual waste from the site is **€500**.

Time to Complete

An overall estimate of the time required to decommission and remove all residual hazardous materials off-site is 2 weeks.

7.1.10. Stage 9: Documentation and Certification

Throughout implementation of the RMP, documentation will be generated to track progress. All residues removed from the site will be recorded and the final disposal certificates will be prepared as required under the terms of the IPPC licence and as required under relevant waste management regulations. A full report on the outcome of the RMP will be prepared and submitted to the EPA.



7.2. Restoration and Aftercare Management Plan – Management of Potential Long Term Residual Soil and Groundwater Contamination

7.2.1. Risk Assessment

A fundamental principle underpinning the RMP will be to manage any soil and groundwater at the Site that is potentially contaminated. Hence, the following risk assessment considers the Site in terms of the potential risks to soil or groundwater from contamination on-site.

The quality of the soil and groundwater beneath much of the Site has been characterised by previous environmental investigations¹. Key investigations include: the hydrogeological report² by KT Cullen and Company Ltd (KT Cullen) in 1994 ; the 1996 groundwater monitoring report by KT Cullen ; the 1997 Dames and Moore groundwater assessment³

report ; the 2003 URS report on the historical sources and activities that could adversely affect groundwater and surface waters⁴ .

The current understanding of the environmental condition of the soil and groundwater at the Site is summarised in the following sections.

7.2.1.1. Geology

According to the Geological Survey of Ireland (GSI), the soils of the area are typically made ground or till deposits⁵ . The till deposits are described as being of glacial origin and characterised by gravels and sands derived from the local Devonian sandstones.

Site-specific exploratory information 3 to 7 meters of sandy clay beneath most of the Site⁶, with sand and gravel deposits in excess of 4 metres thick beneath the car parking areas in the north of the Site .

The soils at the Site overlie fractured limestone bedrock⁷ , consisting of two distinct formations:

KT Cullen & Company Limited, "Hydrogeological Report and Recommendations for Further Investigation and Remediation, Hickson Pharmachem Ltd. Ringaskiddy Co. Cork", ref #589-6/94, dated June 1994.

2

KT Cullen & Company Limited, "Groundwater Quality Monitoring (December 1996), Hickson Pharmachem Ltd. Loughbeg, Ringaskiddy Co. Cork, ref #470-Jan 1997, dated January 1997.

3

Dames & Moore, "Report on the assessment of Groundwater Chemical Quality Data from sampling in 1997 at Warner Lambert, Ringaskiddy" ref 13218-096 dated May 1998.

4

URS, "Inventory of Historical Sources and Activities that Could Adversely Affect Ground and Surface Water, Pfizer Ireland Pharmaceuticals, Loughbeg Site, Cork, Ireland." dated July 2003.

5

Teagasc South Western River Basin District Subsoils mapping sourced from the Geological Survey of Ireland Groundwater Web Mapping Site. Website: <http://www.gsi.ie>

6

Dames & Moore, "Final Report on Soil Investigation at WLE, Ringaskiddy" ref 13218-103 dated 1999.



- Massive, unbedded, fine-grained limestones, found beneath the southern half of the Site and to the north of the Site;
- Mixed cherty calcareous mudstones and limestones, underlying the northern part of the Site. In the northern part of the Site, this layer overlies the massive, unbedded, fine-grained limestones.

The upper part of the limestone to be heavily fractured, heavily weathered (termed 'epikarst') and water-bearing to a depth of approximately 12 m below ground level (m bgl). Limestone has been proven to over 50 m bgl on-site.

Geophysical studies using the resistivity method reportedly showed an east-west trending area of low resistivity⁸. This is considered to be a bedrock fault containing saline water. There is an inferred bedrock fault line beneath the Site which corresponds with the locations of springs on the foreshore to the east and west of the Site⁹.

7.2.1.2. Hydrology

The subject Site located on a small headland or peninsula projecting south into Loughbeg, an inlet on the western side of the lower Cork Harbour area.

The Site is at an elevation of between 5 and 15 metres above Ordnance Datum (Malin) or OD. The immediate vicinity of the subject property is tidal water to the south and east and generally flat-lying intertidal mudflats in Loughbeg to the west.

There are no surface watercourses or water bodies on the Site or mapped within 1 km of the Site.

Non-process surface water (or storm water) at the Site is drained to three storm water outfalls: the North side outfall (SW5); the South side outfall (SW3); and the West car park outfall (SW4).

The main surface water body in the area is Cork Harbour directly to the east and south.

7.2.1.3. Hydrogeology

Based on measurements conducted on-site, the water table is located between 1 and 2 m above Ordnance Datum at the Site, or approximately 8.5 m below grade, which is consistent with its low-lying, coastal setting.

7

South Cork Geology Map (1994), Sheet 25, 1:100,000 Bedrock Map Series. Geological Survey of Ireland.

8

KT Cullen & Company Limited, "Hydrogeological Report and Recommendations for Further Investigation and Remediation, Hickson Pharmachem Ltd. Ringaskiddy Co. Cork", ref #589-6/94, dated June 1994.

9

KT Cullen & Company Limited, "Hydrogeological Report and Recommendations for Further Investigation and Remediation, Hickson Pharmachem Ltd. Ringaskiddy Co. Cork", ref #589-6/94, dated June 1994.

Groundwater flow from the headland was inferred to be dominantly shallow flow via the epikarst towards the harbour generally in a radial pattern, though with some concentration of groundwater flows toward the foreshore springs to the east and west of Site.

Groundwater flow beneath the peninsula is considered essentially isolated from the mainland to the north by thicker, more permeable quaternary sand and gravel sediments beneath the neck of land joining the Site to the mainland.

The bedrock limestone aquifer is defined by the GSI as a karstified limestone aquifer that is classified as “locally important” in the Cork area ¹⁰.

The GSI classifies the vulnerability rating for the shallow groundwater aquifer as extreme in this area ¹¹. However, this aquifer is considered unlikely to be a potential source of potable water at Loughbeg, as there is evidence of saline intrusion in the monitoring wells at the Site and little evidence of groundwater present in the deeper, less fractured limestone.

There are no active abstraction wells on the Loughbeg peninsula (owned in its entirety by Pfizer subsidiaries) other than the remediation wells EW2 and EW4 and, given the absence of rural housing or farmyards to the north of the Site, there is a negligible likelihood of any abstraction wells being present within 500m of the Site to the north.

7.2.1.4. Soil and Groundwater Quality

Pfizer Loughbeg have collected annual groundwater monitoring data going back to the early 1990's. The impacts of three key groundwater contamination incidents are evident in the historical groundwater monitoring data:

- 1989 - The grounding of a chlorobenzene vapour cloud in an area of unmade ground to the northeast of CB2, as the result of a rupture of a reactor in CB2.
- Early 1992 - 14,000 litres of proprietary hydrocarbon solvent mixture spilled to ground to the north of building CB2.
- August 1993 - Ruptured solvent tank (during a fire in CB2) leading to an estimated loss of 100 litres each of chlorobenzene, dichloromethane, IPA and MEK.

No data is available for the extraction wells (prefixed EW) prior to the 1992. Data from the monitoring wells (prefixed MW) indicate elevated concentrations of organic solvents thought to result from a leaking sump north of CB1 and defective below ground effluent drains.

¹⁰
Geological Survey of Ireland, Groundwater Web Mapping Site. Website: <http://www.gsi.ie>

¹¹
Geological Survey of Ireland, Groundwater Web Mapping Site. Website: <http://www.gsi.ie>



After the leak in early 1993 elevated concentrations of several compounds, in particular dichloromethane (DCM), toluene & tetrahydrofuran (THF), were detected in EW7, EW6, MW5 and to a lesser extent in EW5 & EW4.

In May 1993, prior to the fire in CB2, concentrations of DCM and toluene had decreased in all the wells, most significantly in those to the west of the Site (EW5-7 and MW5) and the concentrations of THF in EW7 had reduced by almost half.

Following the fire in August 1993, increases in chlorobenzene and DCM were noted in MW2S, MW7S, EW1, EW2, EW3 to the north-east, EW7 to the west and in EW4 immediately to the east. Chloroform was detected in EW1, EW3 and EW4. The highest concentrations of all compounds were noted in the groundwater in EW4, chlorobenzene (8900 µg/L) and chloroform (7200 µg/L) in December 1994 and DCM (8270 µg/L) in May 1995.

A review of historical data showed a major decline in detection of organic solvents in groundwater in 1996/1997 relating to attenuation of contaminants relating to a number of groundwater-related incidents at the site in the early 1990s.

Subsequent monitoring of MW2 & MW5 and EW2 and EW4 carried out from 1997 to 2008 has shown only trace concentrations of contaminants of concern in groundwater beneath the Site, with the exception of chlorobenzene in well EW2, EW4 and MW2S. Individual petroleum hydrocarbons compounds in EW4 have generally been present at less than 100 µg/L since 2002.

Chlorobenzene had been detected intermittently in groundwater in MW2S, MW6S, EW2 and EW4 around 1991 but had declined to only trace levels by 1997. However, subsequent to the re-positioning of groundwater monitoring well EW4, chlorobenzene has been detected since mid 2001 at seasonally elevated concentrations in EW4 and, to a lesser extent, in MW2S, and in EW2.

In recent years, chlorobenzene in well EW4 has shown seasonal fluctuation, with winter/spring concentrations in the range 3,000 to 9,000 µg/L (coinciding with the typical period of highest annual rainfall and groundwater levels in Ireland) and has been non-detect (<1 µg/L) in summer/autumn samples.

In 2007, no seasonally elevated chlorobenzene concentrations were recorded during monthly sampling in the early part of the year and the single sample in October 2007 which did exceed the Dutch Intervention Value was of an order of magnitude lower concentration than the 2006 peak chlorobenzene concentrations in this well. In 2008 chlorobenzene in well EW4 has shown seasonal fluctuation, with typical concentrations in the range 3,000 to 23,000 ppb during sustained periods of heavy rainfall and non-detect (<1 ppb) during drier conditions.

Owing to the low permeability of the bedrock and subsoils around well EW4, the absence of a beneficial use of groundwater at the site, the limited volume of groundwater discharge from the Loughbeg peninsula, the high dilution of groundwater in the harbour and the fact that well EW4 is pumped continuously, these intermittently elevated chlorobenzene concentrations are considered to pose negligible risk to the estuarine waters around the Site.



In 2008 MTBE, toluene and DCM were all detected at elevated levels in groundwater at EW4, generally between January and April 2008, which is likely to be a response to the periods of extremely high rainfall experienced in 2008.

However, the low permeability of the bedrock aquifer at well EW4, the limited volume of groundwater discharge to the estuary from the Loughbeg peninsula and the high dilution of groundwater in the harbour are significant attenuating factors and the risks posed by the concentrations of these low concentrations of organic compounds to the estuarine waters around the Site are considered negligible.

Soil

As much of the soil quality data for the operating part of the Site dates back to the borehole drilling works conducted during the early 1990's, the data is considered unlikely to provide a representative illustration of current soil quality at the Site. In particular, it is noted that significant soil contamination incidents have occurred subsequent to the collection of this soil data.

On this basis, soil quality has been discussed in this section from a qualitative rather than quantitative perspective.

Given the low permeability typical of glacial tills present beneath the Site, and the fact that groundwater appears to show continuing impacts of contamination incidents dating between 1989 and 1993, it is likely that the soils of these locations also show the impacts of these incidents. It is assumed that these impacts are localised in extent, however, for the purpose of this RMP, it is also assumed that the soils of other areas of the Site could be impacted by historical or future operations at the Site.

7.2.2. Post – Closure Intrusive Investigation

The first step involved in the post closure investigation would be to assess whether an intrusive investigation is required based on historical data and trends in existing groundwater monitoring data. It has been assumed for the purposes of this RMP that a post closure intrusive investigation with some groundwater monitoring will be required (this may not necessarily be the case).

The aim of the intrusive investigation would be to establish where (if anywhere) there is soil contamination and whether any soil or groundwater-specific corrective action may be required at the PIP Site. The investigation would aim provide a site condition report that would protect PIP from liability relating to pollution that may subsequently be caused by any subsequent users of the Site. Risk based decision making could be used to quantitatively evaluate the risk posed by contamination detected, and to design an appropriate remedial program.

The post closure investigation, carried out by a suitably qualified and independent third party, would encompass potential source areas of chemical release (production areas, areas of current or historical chemical or fuel storage, etc). It is envisaged that the investigation would be carried out following plant closure to avoid interfering with the decommissioning and plant decontamination phase. However, if post-closure groundwater treatment is considered likely, a treatment feasibility and design project would be required prior to plant closure in order to determine whether the Site waste water treatment plant would be required for groundwater treatment.



The need, if any, for additional (medium to long-term) groundwater monitoring will be dependent upon soil and groundwater quality identified during the post closure investigation.

As outlined above, the major steps for the Long Term Program (LTP) would be initiated immediately following decontamination and decommissioning of the plants operational areas. The key steps of this program are predicted to be as follows:

1.

1.

Characterise potential source areas of chemical release (soils) and define remedial targets (if appropriate);
2.

2.

Carry out soil sampling of potential source areas;
3.

3.

Obtain groundwater samples and analyse for target compounds based on assessment of current and historical operations at Pfizer Ireland Pharmaceuticals;
4.

4.

Design/implementation of soil remediation program (if appropriate);
5.

5.

Design/implementation of groundwater remediation program (if appropriate). This may be monitoring only or it may include active remediation; and
6.

6.

Longer-term post remediation monitoring and/or decommissioning of remedial plant once remedial targets have been achieved.

A comprehensive listing of identified potential source areas are listed below in Table 6.1.

Table 6.1 Potential Sources of Chemical release SITE AREAS	RATIONALE
Chemical storage – Drum store, Bulk Storage, Chemical Buildings 1 and 2	In the event of a spillage on-site, there is the potential for release of hazardous materials.
Fuel / oil storage tanks	In case of tank and bund integrity, breach there is a potential for hydrocarbon release.
Process lines	In case of pipe breach, there is a potential for release of hazardous materials.
Engineering warehouse	Storage / operations have the potential for release of solvents and oils.
Areas loading / unloading / processing hazardous	In the event of a spillage, there is the potential for hazardous materials release.



materials.	
Effluent drainage lines and treatment	In case of pipe or tank breach, there is a potential for process effluent release.

Investigation of the above areas is expected to involve the installation of shallow sampling boreholes in certain potential source areas, principally around Chemical Building 2, using a combination of window sampling and percussive drilling. Trial pits may be installed in certain areas to allow improved visual inspection.

Where groundwater sampling is required close to source areas (likely to be limited to outside buildings), deeper boreholes into bedrock will be drilled using an air flush rotary technique.

The expected budget required to complete the investigation of potential soil source areas, including laboratory analysis, quantitative risk assessment (to derive risk based remedial actions and goals) and risk communication is estimated to be of the order of **€40,000 -€60,000**. This is a provisional fee and, as outlined above, may not actually occur at the time of site closure.

7.2.3. Design/Implementation Source Area Soil Remediation Program (as appropriate)

Soil remediation may be required in certain source areas as part of the remediation program. The magnitude and extent of any future soil contamination and the requirement for remediation will only be understood following post-closure investigations outlined above.

The potential for extensive soil contamination is considered to be moderate given the apparently limited groundwater impact by a chlorobenzene in a single, low permeability well.

If the post-closure investigation encounters areas of significant shallow soil contamination which could continue to leach to groundwater (acting as an ongoing source of groundwater contamination) or have implications with respect to the potential future use of the Site, the results of the post-closure investigation study will be used to establish whether specific corrective action will be required. Risk based decision making will be used to quantitatively evaluate the appropriate levels of residual contamination that can be left in place.

In consideration of groundwater contamination present at the Site, there may be some residual contamination beneath the buildings and large on-site structures. Hence, treatment of residual contamination beneath the buildings may be required.

The budget required to complete soil and groundwater remediation (if required) would be of the range **€50,000 to €500,000**.



7.2.4. Management of Corrective Action Program with Post Remediation Monitoring

Following site closure, a period of groundwater monitoring is likely to be required.

In a site closure and decommissioning situation, the scope of the groundwater-monitoring program is likely to consist of an annual groundwater monitoring programme.

Assuming a total of three years of annual groundwater monitoring, which would need to be agreed with the EPA, until final closure and surrender of the IPPC licence, groundwater monitoring and data assessment/reporting costs for the PIP facility are predicted to be of the order of **€15,000** to **€25,000** per year.



8. TEST PROGRAM

It is assumed that following completion of decontamination and decommissioning operations on-site, subsequent compilation of documentation (as previously detailed in Section 5.0) and submission to the EPA and relevant authorities will be satisfactory to demonstrate successful implementation of the short-term program.

Further, it is also assumed that any ongoing soil/groundwater remediation and/or monitoring programs will demonstrate the completion of the long-term program to the satisfaction of the EPA and relevant authorities, such that a certificate of completion will be issued following completion of the RMP.

On this basis, it is assumed that documentation and communications with the EPA and relevant authorities during the course of the RMP will be sufficient to demonstrate successful completion, and as a result a test program would not be required.



9. SUMMARY OF COSTS ASSOCIATED WITH THE RMP

This section briefly summarises the costs presented in Sections 7.1 and 7.2 of this report. The summary is presented in Table 9.1 and includes all costs identified during the analysis of the Short Term and Long Term Programs.

Table 9.1 Summary of RMP Costs ITEM	DESCRIPTION	COST (€)
STP. 1	Production decommissioning	€400,000
STP. 3	Production related hazardous waste disposal Production related non-hazardous waste disposal	€ 536,600 €43,650
STP. 4	Cleaning of tanks, bunds, sumps and interceptors	€198,000
STP. 5	Non-process related wastes	€2,000
STP. 6	Decommissioning of site services, including laboratories	€196,000
STP. 7	Decommissioning of the WWTP	€120,000
STP. 8	Removal of Residual Hazardous Material	€500
	SUB TOTAL STP (approximate)	€ 1,496,750
LTP.1	Investigation for potential contamination sources	€40,000 to €60,000 ^{Note 1}
LTP.2	Source area soil corrective action	€50,000 to €500,000
LTP.3	Monitoring of groundwater contamination	€45,000 to €75,000
	SUB TOTAL LTP (approximate)	€135,000 to €635,000
	RMP TOTAL (approximate)	€ 2,131,750^{Note 2}

Note 1 As outlined in section 7.2.2, this is a provisional fee and may not actually occur at the time of Site closure.

Note 2 This assumes the upper range of the LTP costs provided.

In conclusion, in the unlikely event of site closure, it has been estimated that approximately € 2.13 million would be required to bring the site to an environmentally safe condition.



10. UNDERWRITING THE RMP – FINANCIAL PROVISIONS

Pfizer Ireland Pharmaceuticals, Loughbeg (Pfizer Loughbeg) is a component site of Pfizer Ireland Pharmaceuticals, a partnership (under Irish law) which is wholly-owned ultimately by Pfizer, Inc. and which operates within the Pfizer Global Manufacturing (PGM) division of Pfizer, Inc. PGM operates a global network of manufacturing sites, including both bulk manufacture and final dosage formulation facilities, together with logistics facilities, and technical support functions. The function of PGM within the Pfizer Inc. organisation is to ensure the manufacture and supply of quality product to the company for ultimate distribution to the marketplace.

Pfizer is the world's largest research-based biomedical and pharmaceutical company. In 2007, Pfizer earned US\$48 billion in revenues. Pfizer retains strong credit rating from Standard and Poor's (AAA) rating) and Moody's (Aa 1 rating).

The Pfizer Loughbeg site is a cost centre within PGM and is therefore centrally funded from Pfizer headquarters in the US. The site operates to an agreed annual budget which is set in advance and which is intended to cover projected expenditure related to site operations for that financial year. This budget is typically of the order of several hundred million US dollars.

A decision to decommission all or part of the Pfizer Loughbeg site would be taken centrally by Pfizer under a coordinated review. Any such decision would be announced by Pfizer central management sufficiently in advance of implementation to allow adequate opportunity to migrate production to alternative locations, to explore divestiture options, to address legal and regulatory requirements, and to complete decommissioning activities where required. Any closure decision would therefore be taken significantly in advance of implementation.

In the event of such a decision, the site Residuals Management Plan (RMP) would be prepared for activation. The actions detailed in the RMP would begin upon cessation of manufacturing and preparation for closure.

It is a valid assumption that any shutdown of the site will be a well-planned and well-resourced process. This implies that the shutdown date will be known well in advance and that both production schedules and raw materials purchasing will be planned with the shutdown already factored in. It also implies that Pfizer will have the resources in terms of both financial inputs and manpower to implement the RMP through to completion, with no requirement for external financing or manpower other than for expert advice.

Because of the likely lengthy interval between a decision to close and its actual implementation, adequate time would be available to ensure that such an allowance for central Pfizer funding would be incorporated into the site budget.

Consequent upon a decision to decommission all or part of the Pfizer Loughbeg site, an estimate would be prepared of projected closure costs, including those costs which may be incurred under RMP activities. This cost estimate would include those activities required to effect closure in the short-term and also any longer term remediation and monitoring activities if required. A detailed dossier would then be prepared for submission to Pfizer central management and if approved, central funding would be released by Pfizer to cover both short-term and longer-term costs as required. Such central funding may be structured by Pfizer to stretch over several years as required to cover longer-term activities.



Pfizer is committed to ensuring the highest level of environmental performance and environmental protection in its operations, and regards this as an integral part of its normal business practice. This includes a commitment to safe and responsible residuals management where required. The examples provided are evidence of the company's past and ongoing commitment in this area, including the provision of central funding to implement and progress any required residuals management.

In accordance therefore with standard Pfizer corporate practice, on occurrence of a site closure associated expenditure, inclusive of any necessary aftercare or remediation activities, would be provide through central funding mechanisms.



11. REVIEW OF THE RMP

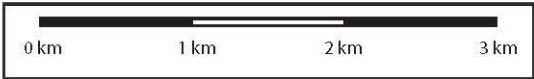
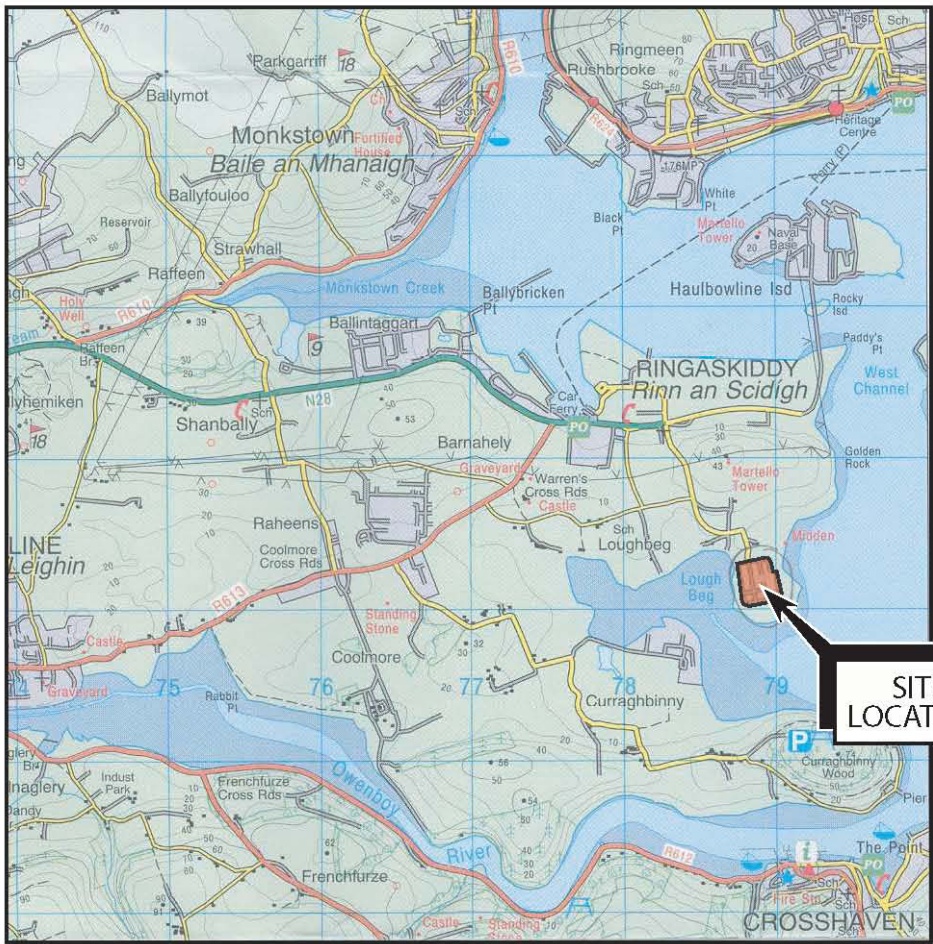
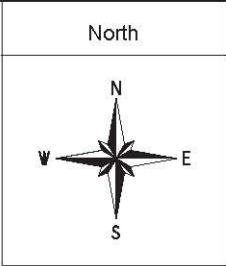
The summary of costs associated with the RMP, as presented in Section 9.0 of this report, are estimates only and are based on the information and data available at the time of compilation of the report. It is anticipated that these costs will vary as time progresses and will depend on factors, including the following:

- . • Site conditions;
- . • Legislative developments;
- . • Inflation.

Taking this into consideration therefore, it is important that the RMP report and associated costs are reviewed and updated to reflect the current site situation. In addition, IPPC licence requirements specify the RMP report must be reviewed on an annual basis as part of the Annual Environmental Report.



Appendix A - Site Layout



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CLIENT

PFIZER IRELAND PHARMACEUTICALS

ENVIRONMENTAL CONSULTANTS

URS

 SITE BOUNDARY LINE

1. REFERENCE LOCATION POINT.

2. DELETED

LEGEND:

 DENOTES EMISSION POINT LOCATION

SCHEDULE				UNIT	UNIT DESCRIPTION	UNIT NAME	PT. USED	TIME	QST. REMARKS
4	ENTRANCE	11:07 - 7:40	1000 A						E 78/874
5	ENTRANCE	7:40 - 10:00	1000 A						E 78/877
6	ENTRANCE	10:00 - 11:00	1000 A						E 78/878
7	ENTRANCE	11:00 - 12:00	1000 A						E 78/879
8	ENTRANCE	12:00 - 1:00	1000 A						E 78/880
9	ENTRANCE	1:00 - 2:00	1000 A						E 78/881
10	ENTRANCE	2:00 - 3:00	1000 A						E 78/882
11	ENTRANCE	3:00 - 4:00	1000 A						E 78/883
12	ENTRANCE	4:00 - 5:00	1000 A						E 78/884
13	ENTRANCE	5:00 - 6:00	1000 A						E 78/885
14	ENTRANCE	6:00 - 7:00	1000 A						E 78/886
15	ENTRANCE	7:00 - 8:00	1000 A						E 78/887
16	ENTRANCE	8:00 - 9:00	1000 A						E 78/888
17	ENTRANCE	9:00 - 10:00	1000 A						E 78/889
18	ENTRANCE	10:00 - 11:00	1000 A						E 78/890
19	ENTRANCE	11:00 - 12:00	1000 A						E 78/891
20	ENTRANCE	12:00 - 1:00	1000 A						E 78/892
21	ENTRANCE	1:00 - 2:00	1000 A						E 78/893
22	ENTRANCE	2:00 - 3:00	1000 A						E 78/894
23	ENTRANCE	3:00 - 4:00	1000 A						E 78/895
24	ENTRANCE	4:00 - 5:00	1000 A						E 78/896
25	ENTRANCE	5:00 - 6:00	1000 A						E 78/897
26	ENTRANCE	6:00 - 7:00	1000 A						E 78/898
27	ENTRANCE	7:00 - 8:00	1000 A						E 78/899
28	ENTRANCE	8:00 - 9:00	1000 A						E 78/900
29	ENTRANCE	9:00 - 10:00	1000 A						E 78/901
30	ENTRANCE	10:00 - 11:00	1000 A						E 78/902
31	ENTRANCE	11:00 - 12:00	1000 A						E 78/903
32	ENTRANCE	12:00 - 1:00	1000 A						E 78/904
33	ENTRANCE	1:00 - 2:00	1000 A						E 78/905
34	ENTRANCE	2:00 - 3:00	1000 A						E 78/906
35	ENTRANCE	3:00 - 4:00	1000 A						E 78/907
36	ENTRANCE	4:00 - 5:00	1000 A						E 78/908
37	ENTRANCE	5:00 - 6:00	1000 A						E 78/909
38	ENTRANCE	6:00 - 7:00	1000 A						E 78/910
39	ENTRANCE	7:00 - 8:00	1000 A						E 78/911
40	ENTRANCE	8:00 - 9:00	1000 A						E 78/912
41	ENTRANCE	9:00 - 10:00	1000 A						E 78/913
42	ENTRANCE	10:00 - 11:00	1000 A						E 78/914
43	ENTRANCE	11:00 - 12:00	1000 A						E 78/915
44	ENTRANCE	12:00 - 1:00	1000 A						E 78/916
45	ENTRANCE	1:00 - 2:00	1000 A						E 78/917
46	ENTRANCE	2:00 - 3:00	1000 A						E 78/918
47	ENTRANCE	3:00 - 4:00	1000 A						E 78/919
48	ENTRANCE	4:00 - 5:00	1000 A						E 78/920
49	ENTRANCE	5:00 - 6:00	1000 A						E 78/921
50	ENTRANCE	6:00 - 7:00	1000 A						E 78/922
51	ENTRANCE	7:00 - 8:00	1000 A						E 78/923
52	ENTRANCE	8:00 - 9:00	1000 A						E 78/924
53	ENTRANCE	9:00 - 10:00	1000 A						E 78/925
54	ENTRANCE	10:00 - 11:00	1000 A						E 78/926
55	ENTRANCE	11:00 - 12:00	1000 A						E 78/927
56	ENTRANCE	12:00 - 1:00	1000 A						E 78/928
57	ENTRANCE	1:00 - 2:00	1000 A						E 78/929
58	ENTRANCE	2:00 - 3:00	1000 A						E 78/930
59	ENTRANCE	3:00 - 4:00	1000 A						E 78/931
60	ENTRANCE	4:00 - 5:00	1000 A						E 78/932
61	ENTRANCE	5:00 - 6:00	1000 A						E 78/933
62	ENTRANCE	6:00 - 7:00	1000 A						E 78/934
63	ENTRANCE	7:00 - 8:00	1000 A						E 78/935
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65	ENTRANCE	9:00 - 10:00	1000 A						E 78/937
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67	ENTRANCE	11:00 - 12:00	1000 A						E 78/939
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69	ENTRANCE	1:00 - 2:00	1000 A						E 78/941
70	ENTRANCE	2:00 - 3:00	1000 A						E 78/942
71	ENTRANCE	3:00 - 4:00	1000 A						E 78/943
72	ENTRANCE	4:00 - 5:00	1000 A						E 78/944
73	ENTRANCE	5:00 - 6:00	1000 A						E 78/945
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83	ENTRANCE	3:00 - 4:00	1000 A						E 78/955
84	ENTRANCE	4:00 - 5:00	1000 A						E 78/956
85	ENTRANCE	5:00 - 6:00	1000 A						E 78/957
86	ENTRANCE	6:00 - 7:00	1000 A						E 78/958
87	ENTRANCE	7:00 - 8:00	1000 A						E 78/959
88	ENTRANCE	8:00 - 9:00	1000 A						E 78/960
89	ENTRANCE	9:00 - 10:00	1000 A						E 78/961
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91	ENTRANCE	11:00 - 12:00	1000 A						E 78/963
92	ENTRANCE	12:00 - 1:00	1000 A						E 78/964
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159	ENTRANCE	7:00 - 8:00	1000 A						E 79/031
160	ENTRANCE	8:00 - 9:00	1000 A						E 79/032
161	ENTRANCE	9:00 - 10:00	1000 A						E 79/033
162	ENTRANCE	10:00 - 11:00	1000 A						E 79/034
163	ENTRANCE	11:00 - 12:00	1000 A						E 79/035
164	ENTRANCE								

LEVELS:
LEVELS ARE RELATED TO DUBLIN BAY.
SITE DATUM:
20+ORDINATES 174.835 E. 83.223 N. LEVEL 12.90

FINAL

ENVIRONMENTAL CONSULTANTS



Keogh Court, 6-8 Harcourt Road, Dublin 2
TEL +353 1 4155100 FAX +353 1 4155101

CLIENT

PFIZER IRELAND PHARMACEUTICALS

PROJECT

**RMP, PFIZER LOUGHBEG,
RINGASKIDDY, Co. CORK**

DRAWING TITLE

FIGURE 2 - SITE LAYOUT

DATE	31.03.2008
APPROVED	PH / COR
CHECKED	PH
TRACED	
DRAWN	SML
SCALE	
Job No:	49340556
AS SHOWN	
REV	A





Appendix B - Gantt Chart

Pfizer Ireland Pharmaceuticals Loughbeg

Gantt Chart

Residual Management Plan

ID	Stage	W1	W2	W3	W4	W5	W6	W7	W8	W9	W 10	W11	W12
1	Production Decommissioning												
2	Removal of Excess Materials and Final Product												
3	Removal of Production Wastes												
4	Contract Cleaning of Bulk Storage												
5	Removal of non-process related materials and non-hazardous wastes												
6	Decommissioning Site Services												
7	Decommissioning of the Wastewater Treatment Plant												
8	Removal of Residual Hazardous Materials												
9	Documentation and Certification												

Where W = week

Appendix 17

Statement of measures in relation to prevention of environmental damage and remedial actions (Environmental Liabilities)

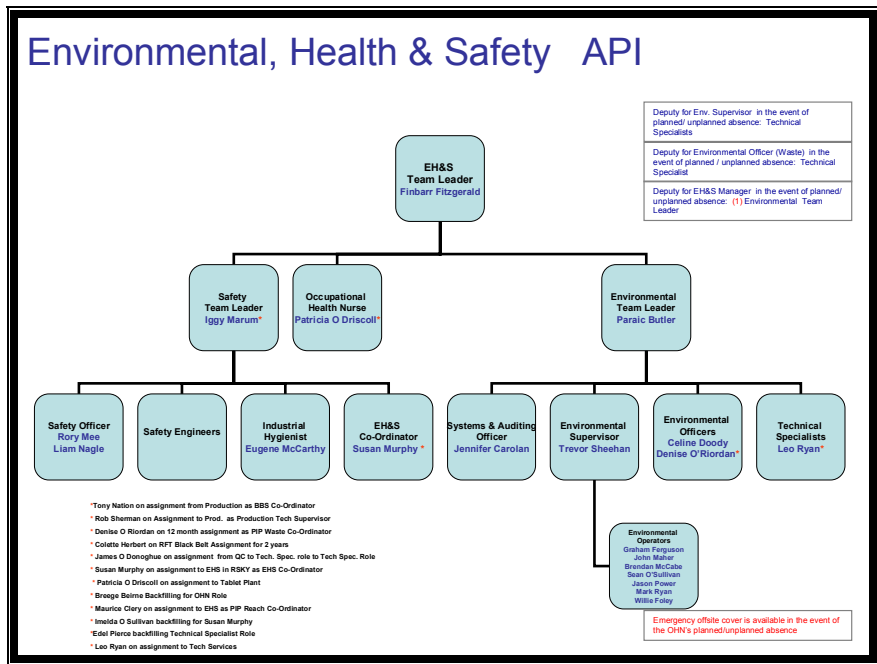
Appendix 18

Environmental liabilities Risk management review (every three years or more frequently as dictated by relevant on site change including financial provisions

Appendix 19

Organisation Charts

Loughbeg API:



Tablet Facility:





Pfizer Ireland Pharmaceuticals
Loughbeg API
Loughbeg
Ringaskiddy
Cork
Ireland
Tel 353(0)-21-4378788
Fax 3553(0)-21-4378697

Office of Environmental Enforcement
South/South West Region,
EPA
Inniscarra
Co Cork

Date: 25/03/09

Register No: P0010-04 Att: Ms No O' Donoghue
Company Name: Pfizer Ireland Pharmaceuticals (Loughbeg)

Report Name: Annual Environmental Report 2008

Dear Ms O' Donoghue,

In accordance with the terms of the site IPPC Licence, please find attached for your attention the original and 2 copies of this report.

If you require further information please let me know.

Yours Sincerely,

Finbarr Fitzgerald
Environment, Health & Safety Manager.

Date: 25/3/09