

Boston Scientific Corporation – Galway

IPPC Licence Number P0725-01



Annual Environmental Report 2008 & Environmental Management Programme 2009

Ballybrit Business Park, Galway, Co. Galway

Opening Comments

Much has been achieved by way of environmental protection at Boston Scientific's Galway facility during the three-year period since the site's first Annual Environmental Report (AER) in 2006.

The waste generated by the operation, both hazardous and non-hazardous, has shown a significant downward trend over this period. Of special note is the 35% reduction in the amount of hazardous waste generated which was achieved through focused waste-reduction initiatives. In our 2007 AER we identified energy usage and efficiency as a key pillar of our environmental management programme and during 2008 we have made continuous improvements in this area with a major step being taken towards integrating a Combined Heat and Power (CHP) plant into the operation with the concomitant benefits of more efficient energy generation and less pollution impact. This focus and drive will continue during 2009.

In addition to operational improvements, we have also raised employee awareness of the need for environmental protection by introducing a car-pooling initiative as part of our overall traffic management plan and this comes with the added bonus of enhancing employee life balance.

In conclusion, we look to 2009 to continue a preventative strategy to further minimise the impacts of our production on the environment by stressing the need for improved efficiency of energy and raw materials usage and we will work with appropriate organisations, such as Sustainable Energy Ireland (SEI), to achieve this.



Michael Murphy
Director Site Services



Dr. Colm Benson
EHS Manager

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1. INTRODUCTION

1.1 Company Information

Boston Scientific Corporation (BSC) was founded in 1979. It is one of the world's largest medical device company dedicated to the development of less invasive therapies. These procedures provide effective alternatives to traditional surgery by reducing procedural trauma, complexity, and risk to the patient, cost and recovery time. The devices are generally inserted into the human body through natural openings or small incisions in the skin and can be guided to most areas of the body to diagnose and treat a wide range of medical problems. BSC's products are mainly used in the areas of cardiology, neuroradiology, gastroenterology, pulmonary medicine, radiology, urology and vascular surgery.

Corporate headquarters are located in Natick Massachusetts and the company employs 25,000 people with operations in 26 manufacturing, distribution and technology centres worldwide.

Galway Information

Boston Scientific Corporation Galway (BSC Galway) is a medical devices facility, located on a 23-acre site within the Ballybrit Upper Business Park, in Galway. The Galway manufacturing and research and development facility was established in 1994. Currently, BSC Galway has approximately 2,800 employees, making it the largest multinational company in the West of Ireland.

Galway manufactures products for the organisation's main product ranges using a full array of on-site technologies, rendering it virtually self-sufficient in the supply of its own sub assemblies. BSC Galway's products span 60 categories and include more than 14,500 product variants.

The main three product areas are:

Interventional Cardiology - Cardiovascular disease is caused by narrowed or blocked blood vessels in the heart. This disease can be treated through the use of balloon catheter, stent and drug-eluting stents products.

Peripheral Interventions – Peripheral vascular disease occurs when the arteries that carry blood to vessels outside of the heart and brain become narrowed or blocked by plaque, slowing or stopping the flow of blood. This disease is treated less invasively using angioplasty and stenting therapies

Endosurgery – A variety of self-expanding metal stents to provide patients with palliative relief for malignant strictures in the colon, duodenum, common bile duct and oesophagus. In addition, silicone-coated stents provide treatment options for managing some recurrent or inoperable benign strictures of the oesophagus and central airway.

The Annual Environmental Report (AER) has been prepared for the calendar year of 2008. Reference has been made to the EPA Guidance Note for Annual Environmental Report in preparing the report.

1.2 Environment Health and Safety (EHS) Policy



Environment, Health & Safety Policy

In support of Boston Scientific being the best medical device producer in the world, we believe that leading environmental, health and safety performance contributes to our competitive strength and benefits our customers, shareholders and employees. The safety of our workforce and the protection of our environment are of primary performance to Boston Scientific, and are supportive of our commitment to quality throughout the organization. To protect our employees, the environment and our property, we are committed to: providing a safe and healthy working environment as a prerequisite to our operations; continuous improvement in minimizing our environmental impacts and the depletion of natural resources; and preventing pollution.

Boston Scientific will comply with applicable environmental, health and safety laws, directives, regulations and other requirements as a baseline for doing business, not as a goal. We believe compliance is owned by all employees, and will monitor such compliance through regular assessments and audits of our operations, take corrective actions as warranted, and include compliance sustainability as a routine part of operations.

We will periodically identify those aspects of our operations on a local level which have the most significant environmental, health and safety impact, and establish objectives and targets for continuous improvement in these areas. In particular, we will work to advance the following aspects within our operations:

- Minimizing the generation and disposal of solid and hazardous waste, and recycling wastes where feasible
- Optimizing energy and resource usage with a goal of reducing green house gas emissions and eliminating waste
- Controlling and optimizing emissions to the atmosphere
- Reducing workplace injuries and incidents
- Reducing ergonomic and manual handling risks in the workplace

Environmental, health and safety targets and objectives will be set by senior management, communicated to employees, measured and tracked on a regular basis, and revised as needed to reflect current conditions. In order to facilitate this, Boston Scientific will provide appropriate training and resources for employees to use responsible environmental, health and safety practices.

We require our employees to make sound environmental, health and safety management an integral part of their job. Management will demonstrate environmental, health and safety leadership and help build a culture across the company where all employees embrace this policy and these guiding principles as their responsibility.



Jim Tobin
President and CEO

Date
6-29-07

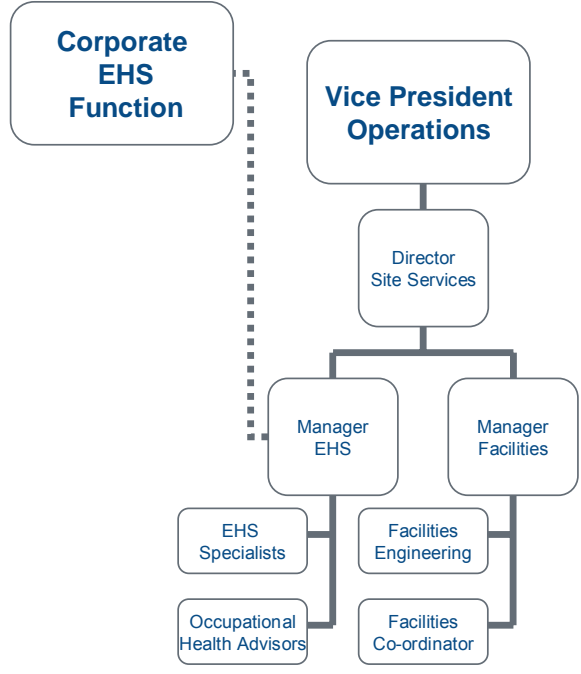


Leonard Sarapas
Corporate Director, EH&S

Date 6-29-07

S842730-00 Revision AF

1.3 Organisation Chart for Environment, Health & Safety Management



2. SUMMARY INFORMATION

2.1 Monitoring Data

2.1.1 Emissions to sewer

There are two emission points for process or trade effluent for the site. These emissions points, SE1 and SE2, are monitored via monitoring chambers prior to combining with the foul sewer which joins the Galway City Council Municipal sewer, which in turn feeds on to the Mutton Island Waste Water Treatment Plant.

SE1 services the phase 1 production area, and SE2 services the phase 2 and 3 production areas. The emissions from both points consist of the combined flow associated with employee hand washing, cooling of extruded plastic, leak testing of products, water “drag-out” tanks from the balloons and metals finishing processes. See Tables 2.1 to 2.2 for monitoring results for SW1 and SW2.

Table 2.1 Trade Effluent Emissions to Sewer SE1

Parameter (MEV)	Emissions	Licensed
Volume (m ³)	8,277	27,375
Temperature Range (°C)	13 – 22	35 (max)
pH Range (Daily Average)	7 – 8	5 – 10
Other Parameters (MEV kg)	Emissions	Licensed
BOD	18,110*	17,885
COD	34,957	139,795
Suspended Solids	722	6,935
Sulphates	502	10,950
Detergents	5	2,738
Oils, Fats and Greases	9	2,738
Total Phosphorus (as P)	1	274
Cadmium (as Cd)	BDL	2.7
Copper (as Cu)	2.4	13.7
Lead (as Pb)	0.02	13.7
Zinc (as Zn)	0.9	13.7
Chromium (as Cr)	0.03	8.2
Nickel (as Ni)	0.04	8.2
Tin (as Sn)	BDL	27.4

MEV = Mass Emission Value

BDL = Below detectable limits

* See text note below Table 2.2

Table 2.2 Trade Effluent Emissions to Sewer SE2

Parameter MEV	Emissions	Licensed
Volume (m³)	10,191	54,750
Temperature Range (°C)	12 – 20	35
pH Range (Daily Average)	7 – 8	5 – 10
Other Parameters MEV kg	Emissions	Licensed
BOD	437	25,770
COD	894	279,225
Suspended Solids	298	13,870
Sulphates	588	21,900
Detergents	1	5,475
Oils, Fats and Greases	BDL	5,475
Total Phosphorus (as P)	4	548
Cadmium (as Cd)	BDL	5.48
Copper (as Cu)	1.1	27
Lead (as Pb)	0.01	27
Zinc (as Zn)	0.4	27
Chromium (as Cr)	0.01	16
Nickel (as Ni)	0.02	16
Tin (as Sn)	BDL	55

MEV = Mass Emission Value

BDL = Below detectable limits

* As can be seen from Tables 2.1 and 2.2 the annual mass emissions for all process effluent parameters for 2008 except for BOD are below the emission limit values.

The 2008 biological oxygen demand (BOD) annual mass emission for SE1 is just 1.3% above the limit. With the agreement of Galway City Council, a Technical Amendment to BSC Galway's IPPC licence was issued by the Environmental Protection Agency on the 15th December 2008 whereby a consolidated SE1 and SE2 BOD mass ELV of 147 kg per day was implemented. As a result, it is not anticipated that there will be any future BOD ELV deviations for these waste streams.

Table 2.3 outlines the individual IPPC Licence non-compliances that occurred during 2008 for process/trade effluent parameters including BOD.

Table 2.3 Trade Effluent Sewer Emissions – Non-compliance Summary

Date	Non-compliance	Cause	Corrective Action
Jul-08	Hourly pH exceedance	New RO water filter installation	Monitor and if necessary stagger rinsing of new filters.
Feb-08 Apr-08 Jun-08 Aug-08	Exceedance of BOD ELV	Glycerine in rinse water	Galway City Council agreed to a consolidated SE1 and SE2 BOD mass ELV. Technical Amendment to BSC Galway IPPC licence issued 15 th December 2008.

ELV = Emission Limit Value

All non-compliances were reported to the Agency in a timely manner.

There are no emissions to surface waters from the facility. Rainwater falling on roofs and hardstand areas of the site drains via the surface water emission point (SW-1) to the Galway City Council storm water sewer system and eventually on to Galway Bay. Table 2.4 lists the monitoring data for SW1.

Table 2.4 Surface Water Runoff Emissions (SW1)

Parameter	Average Value
pH	7.05
Chemical Oxygen Demand (COD mg/l)	22
Total Organic Carbon (TOC mg/l)	<0.01

2.1.2 Emissions to Air

The annual survey of the boilers and emergency generators was conducted in November 2008.

2.1.2.1 Boiler emissions

There are 8 (no.) boilers operating on the site as follows:

- A1-1 348 kW diesel-fired boiler
- A1-2 1000 kW oil-fired boiler
- A1-3 1600 kW oil-fired boiler
- A1-4 1600 kW oil-fired boiler
- A1-5 1600 kW oil-fired boiler
- A1-6 1600 kW oil-fired boiler
- A1-7 550kW oil-fired boiler
- A1-8 550kW oil-fired boiler

These provide a total of 8,848 kW (9MW) capacity for hot water for the site. Boiler sequence controllers are used to achieve a steady common flow temperature from the boilers. This improves the control of loads in the air handling units. Consequently, a much improved temperature and humidity control is achieved in the cleanrooms. This provides large savings on the energy and thus oil consumption, and reduces the stopping and starting of the boilers thus reducing downtime and maintenance.

The monitoring results for the boilers are summarised in Table 2.5.

Table 2.5 Boiler Emissions

Emission Point	Parameter	Mass Emissions Tonnes
A1-1	Combustion Efficiency (%)	85%
	NOx (as NO₂ mg/Nm³)	1.4
	SO₂ (mg/Nm³)	1.0
A1-2	Combustion Efficiency (%)	85%
	NOx (as NO₂ mg/Nm³)	1.8
	SO₂ (mg/Nm³)	3.3
A1-3	Combustion Efficiency (%)	88%
	NOx (as NO₂ mg/Nm³)	6.8
	SO₂ (mg/Nm³)	11.6
A1-4	Combustion Efficiency (%)	87%
	NOx (as NO₂ mg/Nm³)	7.2
	SO₂ (mg/Nm³)	8.2
A1-5	Combustion Efficiency (%)	87%
	NOx (as NO₂ mg/Nm³)	4.4
	SO₂ (mg/Nm³)	6.1
A1-6	Combustion Efficiency (%)	89%
	NOx (as NO₂ mg/Nm³)	1.6
	SO₂ (mg/Nm³)	1.4
A1-7	Combustion Efficiency (%)	89%
	NOx (as NO₂ mg/Nm³)	0.8
	SO₂ (mg/Nm³)	0.8
A1-8	Combustion Efficiency (%)	87%
	NOx (as NO₂ mg/Nm³)	1.5
	SO₂ (mg/Nm³)	2.0

2.1.2.2 Generator emissions

There are 4 (no.) generators operating on site as follows:

- A1-57 704kW diesel-fired generator
- A1-58 704kW diesel-fired generator
- A1-59 704kW diesel-fired generator
- A1-60 800kW diesel-fired generator

The emergency generators, A1-57 through A1-60, provide a back-up power supply to the plant in the event of loss of normal power supply. On request of the ESB, BSC Galway ran three generators, A1-57, A1-58 and A1-59 during peak periods 17:00 to 19:00 hours (Monday through Friday) in the winter months (approximately 200 hours). Generator A1-60 was used for back-up power for 50 hours in 2008.

The monitoring results for the generators are summarised in Table 2.6. The greenhouse gas emissions from the boilers and generators are summarised in Table 2.7.

Table 2.6 Generator Emissions

Emission Point	Parameter	Mass Emissions Tonnes
A1-57	Combustion Efficiency (%)	90%
	NO _x (as NO ₂ mg/Nm ³)	13.4
	SO ₂ (mg/Nm ³)	0
A1-58	Combustion Efficiency (%)	84%
	NO _x (as NO ₂ mg/Nm ³)	10.4
	SO ₂ (mg/Nm ³)	0
A1-59	Combustion Efficiency (%)	80%
	NO _x (as NO ₂ mg/Nm ³)	11.0
	SO ₂ (mg/Nm ³)	0
A1-60	Combustion Efficiency (%)	69%
	No _x (as NO ₂ mg/Nm ³)	1.7
	SO ₂ (mg/Nm ³)	0.02

Table 2.7 Green House Gas Emissions

Emission Points	CO₂ Mass Emissions (Tonnes)
Boilers A1-1 thru A1-8	5,035
Generators A1-57 thru A1-60	651

2.1.3 Noise Survey

A Noise Survey was carried out by AWN Consulting for BSC Galway, to demonstrate that the noise climate at noise-sensitive locations in the vicinity of BSC Galway is in accordance with Condition 6.13 of the facility's IPPC licence. Schedule B.4. of the Licence stipulates the following Noise Limits for emissions from the facility at the nearest noise-sensitive receptors.

Daytime (08:00hrs to 22:00hrs): 55dB(A) L_{Aeq} (30 Minutes)
Night-time (22:00hrs to 08:00hrs): 45dB(A) L_{Aeq} (30 Minutes)

Two environmental noise surveys, one daytime and one night-time, have been carried out at the designated noise-sensitive locations (NSL) in the vicinity of the site and also at selected boundary locations.

Most of the noise measured at the noise-sensitive locations during this survey was less than the specified EPA noise limit values. At NSL 1 the measured night-time level of 46dB $L_{Aeq, 30min}$ marginally exceeds the limit value of 45dB $L_{Aeq, 30min}$, however the dominant noise source observed at this location is road traffic along the Tuam Road. The BSC Galway facility was not audible at this location during the measurement period. There were no audible tones observed at the sensitive locations during the measurement periods.

It may therefore be concluded that the BSC Galway facility is in compliance with the noise limits specified in Schedule B of its IPPC Licence.

A copy of the Noise Monitoring Report is provided in Attachment 1

2.2 Waste Management

In order to minimise the impact of the waste generated on site, the site has focused on the segregation of different waste types to ensure that waste material can be re-used where possible, and otherwise recycled or disposed of in a safe and appropriate manner.

BSC Galway has an ongoing waste reduction and recycling programme as part of the Environmental Management System (ISO 14001) and recycling goals and objectives are an essential part of the site environmental programme. For 2009, BSC Galway has set a goal to increase the percentage of non-hazardous waste diverted from landfill to 68%.

Table 2.15 quantifies the volume of non-hazardous waste that is recycled and the volume of all wastes types arising on site.

Table 2.15 Waste Arising on Site

Waste Type	Tonnes
Non-hazardous Waste for Recycling	598
Hazardous Waste	459
Non-hazardous Waste to Landfill	277
Total Waste Arising on Site	1,334

Records for hazardous waste shipments sent off-site including waste contractor documentation, TFS (Transfrontier Shipment) forms and C1 Consignment forms are held on site and are available for review.

Annual waste arising is summarised in Table 2.10 and Table 2.11 below.

Table 2.10 Annual Non-hazardous Waste Arising

EWC Code	Waste Description	Main Source	Quantity Tonnes	Further Treatment (Method, Location & Undertaker)	Recovery, Reuse or Recycling	Final Disposal (Method, Location & Undertaker)
15 01 01	Cardboard	Warehouse	139	Segregated & baled on site	Recycled via Barna Waste	N/A
15 01 02	Plastic	Production	34	Segregated on site	Recycled via Barna Waste	N/A
15 01 03	Timber	Warehouse	105	Segregated on site	Recycled via Barna Waste	N/A
15 01 06	General Waste	Non-recyclable waste	277	None	None	Landfill, Greenstar
16 02 16	Cable Flex	Production	1	Segregated on site	Recycled via Cedar Waste	N/A
20 01 01	Paper	Office Areas	40	Segregated on site	Recycled via Barna Waste	N/A
20 01 02	Glass	Production/ Canteen	14	Segregated on site	Recycled via Rehab	N/A
20 01 08	Compostable items	Canteen	121	Segregated on site	Composted via Barna Waste	N/A
20 01 25	Cooking Oil	Canteen	7	Segregated on site	Recycled via Frylite	N/A
20 01 36	WEEE	Production	37	Segregated on site	Recycled via Cedar/ Immark/ TechRec	N/A
20 01 40	Metal Scrap	Facilities / Canteen	30	Segregated on site	Recycled via Galway Metals/Rehab	N/A
N/A	Mixed Recyclables	Site Wide	71	Segregated off site	Recycled via Barna Waste	N/A
Totals			875			

Table 2.11 Annual Hazardous Waste Arising

EWC Code	Waste Description	Quantity Tonnes	Method of Disposal/ Recovery	Location of Disposal/ Recovery	Name of Waste Disposal/Recovery Contractor
06 01 01*	Sulphuric Acid	0.38	Incineration	Germany	AVG
07 02 04*	Organic solvents	89	Incineration, Recovery	Denmark, Netherlands, England	Kommunekemi, ATM, SRM
07 05 13*	Solid wastes containing dangerous substances	61	Incineration	Denmark, Netherlands	Kommunekemi, ATM
11 01 11*	Aqueous acidic waste	261	Physico-Chemical & Biological Treatment	Belgium	Shanks
11 01 13*	Kerosene	0.21	Recovery	Ireland	Safety-Kleen
15 01 10*	Empty drums / containers, contaminated packaging	8	Incineration	Denmark, Netherlands, Germany	Kommunekemi, ATM, AVG
15 02 02*	Filters/PPE contaminated with dangerous substances	11	Incineration	Denmark, Netherlands	Kommunekemi, ATM
16 03 05*	Organic Chemicals	0.87	Incineration	Germany	AVG
16 05 07*	Inorganic Chemicals	8	Incineration	Denmark, Germany	Kommunekemi, AVG
18 01 03*	Medical Waste	1	Autoclave	Ireland	Ecosafe Systems
20 01 21*	Fluorescent Lamps	1	Recycling	Ireland	Irish Lamp
20 01 27*	Paint, inks, resins containing dangerous substances	15	Incineration, Recovery	Netherlands, England	ATM, SRM
20 01 35*	WEEE	3	Recycling	Ireland	Cedar/ Immark/ TechRec
Totals		459			

Note: Any waste marked with an asterisk (*) is considered as a hazardous waste

2.3 Agency Monitoring & Enforcement

Agency Personnel visited the site three times during 2008

1. February 26th 2008 – The Agency attended the site to take process effluent and surface water samples at locations SE-1, SE-2 and SW-1. All results complied with the ELV's set out in the IPPC licence.

2. July 17th 2008 - The Agency carried out an inspection of the site. Two observations were issued as a result of this audit as outlined below:

Observation 1: Labelling of Waste

Finding: A waste container in the chemical waste store was unlabelled.

Corrective Action: All relevant Contract Waste Management personnel trained to label waste containers prior to filling and to ensure waste is clearly labelled.

Observation 2: Update Incident Report of Chiller Compressor Failure

Finding: Incident Report not completed

Corrective Action: Obtain completed incident report from maintenance contractor.

Incident report received on September 5th, 2008 and the investigation identified that the failure was as a result of a compressor winding electrical failure.

3. September 18th 2008 – The Agency attended the site to take process effluent and surface water samples at locations SE-1, SE-2 and SW-1. All results complied with the ELV's set out in the IPPC licence.

2.4 Energy & Resource Consumption Summary

2.4.1 Electricity, Fuel & Gas Consumption

Summary of the annual energy, fuel and production gas consumption and quantification of indirect greenhouse gases associated with electricity use.

Table 2.12 Electricity, Fuel & Gas Consumption

Item	Quantity
Electricity (MWh)	33,471
Light Fuel Oil (m ³)	1,883
Kerosene (m ³)	243
Production Gas (m ³)	1,829,173

Table 2.13 Electricity Greenhouse Gas Emissions

Item	CO ₂ Mass Emissions Tonnes
Imported Electricity	13,723

Energy management forms a significant part of BSC Galway's environmental programme and the site has plans to purchase a natural gas fired combined heat and power (CHP) plant which will result in the removal of fuel oil from the site and a reduction in oxides of nitrogen and greenhouse gas emissions and greenhouse gas generation.

2.4.2 Water Consumption

There are five grades of water used at BSC, Galway:

- (1) Non Potable Water - Used to feed the humidifiers at the air handling units.
- (2) Softened Water – Used for dish-washing facilities within the canteen area.
- (3) Purified Water - Used in the manufacture of implantable medical devices.
- (4) Reverse Osmosis Water (similar to purified water) -. Used in the manufacture of implantable medical devices.
- (5) Potable Water – Used for the canteen area, drinking water and make-up water for the chiller water losses.

Very little trade effluent is generated by BSC Galway's production activities. The trade effluent is associated in the main with employee hand washing which is requirement for all personnel entering a controlled environment area, cooling of extruded plastic, leak testing of products and water drag-outs tanks from the metals finishing process.

Table 2.14 contains details on overall site water consumption and the volumes of trade effluent released to sewer.

Table 2.14 Water & Trade Effluent Emissions to Sewer

	Volume (m³)	Licensed Volume (m³)
Total Site Water Use	108,208	N/A
Trade Effluent SE1	8,277	27,375
Trade Effluent SE2	10,191	54,750

2.4.3 Raw Material Consumption

There are four main raw materials used in the manufacturing processes:

1. Chemicals - including adhesives & solvents required for the process are received in small plastic/metal/glass containers (20ml to 200 litres) into the chemical store area of the warehouse. Acid and alkaline chemical solutions are received into an external chemical handling room in 1m³ intermediate bulk containers (IBC).
2. Metals - Stainless steel is received in tubes weighing 10g - 500g. Wire is received in spools (approx. 200-300 g per spool). Both the stainless steel and wire is used to form stents. Metal product sub assemblies i.e. guidewires, markerbands and hypotubes along with metal production aids like mandrels, needles and fixtures are also received.
3. Plastics - Plastic resins are received into the warehouse in bags or containers of resin 5kg - 40kg. Plastic product sub assemblies i.e. valves, hubs and tubing are also received.

4. Packaging - Product is packaged by placing or clipping the product into preformed trays and/or sealed in pouches. The sealed product is placed along with directions for use in a paperboard box. The boxed product is then placed in larger corrugated cardboard boxes for shipping.

BSC Galway use Lean Manufacturing as our production operating system, which relentlessly pursues, through continuous improvement, the elimination of activities (waste) that do not add value for the customer. All lean activities take a designed approach to continuous improvement. Adherence to the Lean philosophy is pursued through the implementation of Core Metrics for each production area including a Lean Metric. Raw material usage and waste is controlled via a scrap improvement metric.

2.5 Environmental Incidents and Complaints

2.5.1 Environmental Incidents

There were two environmental incidents in 2008, Category 3 non-urgent incidents which were reported to the EPA. Incidents relating to licensed emission limit values have been recorded in Table 2.3.

Table 2.16 Environmental Incidents.

Date	Incident Type	Cause	Corrective Action
29/May/2008	Release of 80kg of refrigerant gas	Compressor failure.	Replacement compressor installed.
22/Sep/2008	Leak of 23 kg of refrigerant gas	Pinhole leak	Leak repaired and leak test completed and Chiller returned to service.

The chiller refrigerant gas released in both incidents was R134A. R134A is a HFC and is the replacement gas for the HCFC R22. R134A has no ozone depleting potential but does have a moderate global warming potential.

2.5.2 Environmental Complaints

No environmental complaints were received in 2008 from either employees or the local community or businesses.

2.6 European Pollutant Release and Transfer Register (PRTR)

Attached is a copy of BSC Galway's electronic PRTR detailing the site's emissions of pollutants to air and to sewer, to include the off-site transfer of wastes for 2008 as updated in the AER Electronic Reporting System. There were no emissions to Water or Land from the site.



| PRTR# : P0725 | Facility Name : Boston Scientific Ireland Limited | Filename : P0725_2008 PRTR.xls | Return Year : 2008 |

AER Returns Worksheet

Version 1.1.03

REFERENCE YEAR	2008
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1. FACILITY IDENTIFICATION

Parent Company Name	Boston Scientific Ireland Limited
Facility Name	Boston Scientific Ireland Limited
PRTR Identification Number	P0725
Licence Number	P0725-01

Waste or IPPC Classes of Activity

No.	class_name

Address 1	Environmental Health & Safety Manager
Address 2	Boston Scientific Ireland Ltd
Address 3	Ballybrit Business Park
Address 4	Galway
Country	Ireland
Coordinates of Location	13272273
River Basin District	
NACE Code	325
Main Economic Activity	Manufacture of medical and dental instruments and supplies
AER Returns Contact Name	Mary Collins
AER Returns Contact Email Address	CollinsM@bsci.com
AER Returns Contact Position	
AER Returns Contact Telephone Number	091 - 756300 ext 1346
AER Returns Contact Mobile Phone Number	
AER Returns Contact Fax Number	091 701359
Production Volume	0.0
Production Volume Units	
Number of Installations	1
Number of Operating Hours in Year	7200
Number of Employees	2800
User Feedback/Comments	
Web Address	

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name

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

Is it applicable?	Yes
Have you been granted an exemption ?	No
If applicable which activity class applies (as per Schedule 2 of the regulations) ?	Activity 8 - Other Coating including metal, plastic, textile
Is the reduction scheme compliance route being used ?	No

4.1 RELEASES TO AIR

| PRTR#: P0725 | Facility Name : Boston Scientific Ireland Limited | Filename : P0725_2008 PRTR.xls | Return Year : 2008 |

30/03/2009 15:47

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR									
No. Annex II	POLLUTANT Name	M/C/E	METHOD		QUANTITY				
			Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
						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											
No. Annex II	POLLUTANT Name	M/C/E	METHOD			QUANTITY					
			Method Code	Designation or Description	Emission Point 1	Emission Point 2	Process/Lab Emission	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
02	Carbon monoxide (CO)	M	BS EN 15058		2397.0	14258.0		0.0	16655.0	0.0	0.0
03	Carbon dioxide (CO2)	C	OTH	CTL 018 Carbon Trust	5035289.0	650838.0		0.0	5686127.0	0.0	0.0
04	Hydro-fluorocarbons (HFCs)	C	OTH	Weight	0.0	0.0		0.0	103.0	103.0	0.0
07	Non-methane volatile organic compounds (NMVOC)	M	BS EN 13649		0.0	0.0		3548.0	12785.0	0.0	9237.0
08	Nitrogen oxides (NOx/NO2)	M	BS EN 14792		25329.0	36471.0		0.0	61800.0	0.0	0.0
11	Sulphur oxides (SOx/SO2)	M	BS EN 14792		34460.0	20.0		0.0	34480.0	0.0	0.0

* 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 No.	POLLUTANT Name	M/C/E	METHOD		QUANTITY				
			Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
						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 Net methane (CH4) emission to the environment under T(total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill: Boston Scientific Ireland Limited					
Please enter summary data on the quantities of methane flared and / or utilised	T (Total) kg/Year	M/C/E	Method Used		Facility Total Capacity m3 per hour
			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 engine/s	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# : P0725 | Facility Name : Boston Scientific Ireland Limited | Filename : P0725_2008

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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		SE 1	SE 2	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
			Method Code	Designation or Description	Emission Point 1	Emission Point 2				
13	Total phosphorus	M	ISO 17025:2005	Standard Methods 21st Edition	1.0	4.0	5.0	0.0	0.0	
20	Copper and compounds (as Cu)	M	CRM	Standard Methods 21st Edition	2.4	1.1	3.5	0.0	0.0	
22	Nickel and compounds (as Ni)	M	CRM	Standard Methods 21st Edition	0.04	0.02	0.06	0.0	0.0	
23	Lead and compounds (as Pb)	M	CRM	Standard Methods 21st Edition	0.02	0.01	0.03	0.0	0.0	
24	Zinc and compounds (as Zn)	M	CRM	Standard Methods 21st Edition	0.9	0.4	1.3	0.0	0.0	
76	Total organic carbon (TOC) (as total C or COD/3)	M	ISO 17025:2005	Standard Methods 21st Edition	11652.3	298.0	11950.3	0.0	0.0	
19	Chromium and compounds (as Cr)	M	CRM	Standard Methods 21st Edition	0.03	0.01	0.04	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		Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year		
			Method Code	Designation or Description						
						0.0	0.0	0.0	0.0	

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

| PRTR#: P0725 | Facility Name : Boston Scientific Ireland Limited | Filename : P0725_2008 PRTR.xls | Return Year : 2008 |

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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	15 01 01	No	138.78	Cardboard	R3	M	Weighed	Offsite in Ireland	Bruscar Bhearna Teoranta Waste Licence 106-1	Carrowbrown Co. Galway		
Within the Country	15 01 02	No	104.77	Plastic	R3	M	Weighed	Offsite in Ireland	Bruscar Bhearna Teoranta Waste Licence 106-1	Carrowbrown Co. Galway		
Within the Country	15 01 03	No	104.96	Timber	R3	M	Weighed	Offsite in Ireland	Bruscar Bhearna Teoranta Waste Licence 106-1	Carrowbrown Co. Galway		
Within the Country	15 01 06	No	276.93	Non-recyclable waste	D1	M	Weighed	Offsite in Ireland	Bruscar Bhearna Teoranta Waste Licence 106-1	Carrowbrown Co. Galway		
Within the Country	16 02 16	No	0.712	Cable Flex	R4	M	Weighed	Offsite in Ireland	Cedar Waste Facility License No 185-1	Greenogue Dublin		
Within the Country	20 01 01	No	40.44	Paper	R3	M	Weighed	Offsite in Ireland	Bruscar Bhearna Teoranta Waste Licence 106-1	Carrowbrown Co. Galway		
Within the Country	20 01 02	No	13.6	Glass	R5	M	Weighed	Offsite in Ireland	Rehab Recycling Waste Permit 033/2	Ballymount Dublin		
Within the Country	20 01 08	No	120.94	Compostable Items	R3	M	Weighed	Offsite in Ireland	Bruscar Bhearna Teoranta Waste Licence 106-1	Carrowbrown Co. Galway		
Within the Country	20 01 25	No	7.49	Cooking Oil	R3	M	Weighed	Offsite in Ireland	Frylite Permit WR/77	Kilcolgan Co. Galway		
Within the Country	20 01 36	No	37.29	WEEE	R4	M	Weighed	Offsite in Ireland	TechRec Ireland W0233-01	Park West, Dublin		
Within the Country	20 01 40	No	29.26	Metal	R4	M	Weighed	Offsite in Ireland	Galway Metals Waste Permit WR/05-4	Oranmore Co. Galway		
To Other Countries	06 01 01	Yes	0.38	Sulphuric Acid	D10	M	Weighed	Abroad	Indaver Ireland Licence 36-2	Dun Laoghaire Co. Dublin	AVG Germany	1B2234/AVG-GENB-2
To Other Countries	07 02 04	Yes	89.2	Organic Solvents	R1	M	Weighed	Abroad	Indaver Ireland Licence 36-2	Dun Laoghaire Co. Dublin	SRM England	BL73021D
To Other Countries	07 05 13	Yes	60.94	Solid Waste	D10	M	Weighed	Abroad	Indaver Ireland Licence 36-2	Dun Laoghaire Co. Dublin	ATM, Netherlands	298105
To Other Countries	11 01 11	Yes	261.36	Aqueous Acidic Waste	D9	M	Weighed	Abroad	Indaver Ireland Licence 36-2	Dun Laoghaire Co. Dublin	Shanks, Belgium	36015/28/3/A/1
Within the Country	11 01 13	Yes	0.21	Kerosene	R2	M	Weighed	Offsite in Ireland	Indaver Ireland Licence 36-2	Dun Laoghaire Co. Dublin	Safety Kleen, Dublin	W0099-01
To Other Countries	15 01 10	Yes	7.6	Empty Containers	D10	M	Weighed	Abroad	Indaver Ireland Licence 36-2	Dun Laoghaire Co. Dublin	ATM, Netherlands	298105
To Other Countries	15 02 02	Yes	10.8	Filters/PPE	D10	M	Weighed	Abroad	Indaver Ireland Licence 36-2	Dun Laoghaire Co. Dublin	ATM, Netherlands	298105
To Other Countries	16 03 05	Yes	0.87	Organic Chemicals	D10	M	Weighed	Abroad	Indaver Ireland Licence 36-2	Dun Laoghaire Co. Dublin	AVG Germany	1B2234/AVG-GENB-2
To Other Countries	16 05 07	Yes	7.66	Inorganic Chemicals	D10	M	Weighed	Abroad	Indaver Ireland Licence 36-2	Dun Laoghaire Co. Dublin	AVG Germany	1B2234/AVG-GENB-2
Within the Country	18 01 03	Yes	1.21	Medical Waste	D1	M	Weighed	Offsite in Ireland	Indaver Ireland Licence 36-2	Dun Laoghaire Co. Dublin	Ecosafe, Dublin	Waste Licence 54-2
Within the Country	20 01 21	Yes	1.28	Fluorescent Lamps	R4	M	Weighed	Offsite in Ireland	Indaver Ireland Licence 36-2	Dun Laoghaire Co. Dublin	Irish Lamp, Kildare	Waste Permit 02/2000
To Other Countries	20 01 27	Yes	14.86	Paint Inks Resins	R1	M	Weighed	Abroad	Indaver Ireland Licence 36-2	Dun Laoghaire Co. Dublin	SRM England	BL73021D
Within the Country	20 01 35	Yes	2.76	WEEE	R4	M	Weighed	Offsite in Ireland	Indaver Ireland Licence 36-2	Dun Laoghaire Co. Dublin	TechRec Ireland Ltd	W0233-01

3. MANAGEMENT OF THE ACTIVITY

3.1 Introduction

BSC Galway considers environmental protection an essential requirement of its operations and undertakes to conduct its business in a manner which protects the environment of the customers, employees and communities in which it operates.

BSC Galway will strive to:

- Minimise pollution from all its activities
- Reduce the impact of its environmental aspects, having particular regard to:
 - Aqueous Discharges
 - Air Emissions
 - Waste Management
 - Use of natural resources (water, gas etc)
 - Use of energy
 - Use of raw materials
 - Potential accidents and emergencies
 - Suppliers and contractors
- Implement continual improvement and prevention of pollution in all its operations by regularly setting and reviewing objectives and targets
- Conduct all its activities in compliance with EU and national legislation
- Make the environmental policy and objectives and targets available to employees, other interested parties, and the public on request.

BSC Galway implemented an Environmental Management System in June 2000 and this provides a formal and internationally-recognised structure for environmental management, ongoing assessment of environmental performance, and continual improvement at the facility. Every year the facility reviews the environmental impacts resulting from its operation and develops a programme of objectives and targets to address the significant aspects associated with its activities. The Register of Aspects/Impacts for 2009, the status of the objectives and targets for 2008, and the proposed objectives and targets for 2009 are outlined in sections 3.2, 3.3, and 3.4 respectively.

3.3 Status Report on 2008 Schedule of Objectives and Targets

3.3.1 Objective 1 – Minimise Energy & Resource Usage

Objective	Target	Action	Due Date	Responsibility	Status
Energy & Resource Use	Examine the feasibility & develop business plans for the following potential energy projects	<ul style="list-style-type: none"> • Expand capability of the Energy Monitoring System • Combined heat and power (CHP) • Widen humidity & temperature bands for Production areas • Reduce the number of air changes for Production areas • Implement motor / fan and belt control • Install low occupancy area lighting • Replace standard pulley belts with gear belts on the air handling units across the plant 	Q4, 2008	ET	Completed for all projects identified

3.3.2 Objective 2 – Improve Control & Management of Hazardous Waste

Objective	Target	Action	Due Date	Responsibility	Status
Hazardous Waste Management	Control of the new wet line chemical waste	<ul style="list-style-type: none"> ▪ Develop safe operational procedures for the handling and safe disposal of new wet line hazardous waste 	Q4, 2008	FET/EHSG/MET	Complete

3.3.3 Objective 3 – Minimise the Environmental Impact of Non-Hazardous Waste

Objective	Target	Action	Due Date	Responsibility	Status
Non-hazardous Waste Management	Divert 67% of non hazardous waste created on site from Landfill	<ul style="list-style-type: none"> Examine the feasibility of increasing the volume of resin recycling by on-site segregation. Implement additional segregation of recyclables elements of waste electrical & electronic equipment. 	Q3, 2008	EHSG	Complete Complete

3.3.4 Objective 4 – Minimise the Environmental Impact of Emissions to Sewer

Objective	Target	Action	Due Date	Responsibility	Status
Sewer Emissions Management	Reduce the impact of new wet line emissions to sewer	<ul style="list-style-type: none"> Undertake a review of the rinse tank constituents with respect to process emission licence parameters to identify rinse water suitable to be sent to drain. Implement waste disposal process for the new wet line rinse water. 	Q4, 2008	FET/EHSG/MET	Complete Complete

3.3.5 Objective 5 - Minimise the Environmental Impact of Emissions to Air

Objective	Target	Action	Due Date	Responsibility	Status
Air Emissions Management	Reduce use of ozone depleting hydro chlorofluorocarbons (HCFC's) on site	<ul style="list-style-type: none"> Replace existing chillers with equipment that is compliant to the latest legislative requirements. 	Q4, 2014	FET	On-going

EHSG = Environment, Health & Safety Group, MET = Metals Engineering Team, ET = BSC Galway Energy Team, FET = Facilities Engineering Team

3.4 Proposed Schedule of Objectives and Targets (2009)

3.4.1 Objective 1 – Optimise Energy & Resource Usage

Objective	Target	Action	Due Date	Responsibility
Energy & Resource Use	Implement energy saving projects to reduce electricity used on site by 2.5% from 2008 baseline.	<ul style="list-style-type: none"> Develop the site's energy management system including the Energy Awareness campaign. 	Q4, 2009	ET
		<ul style="list-style-type: none"> Implement the widening of humidity bands for production area cleanrooms. 	Q2, 2010	FET/QA
		<ul style="list-style-type: none"> Investigate kitchen/canteen energy practices and implement feasible energy saving projects. 	Q2, 2010	FET/Canteen

3.4.2 Objective 2 – Improve Control & Management of Hazardous Waste

Objective	Target	Action	Due Date	Responsibility
Hazardous Waste Management	Reduce the volume of and environmental impact of hazardous waste generated on site.	<ul style="list-style-type: none"> Investigate options to divert laser machine coolant waste for recovery over incineration. 	Q2, 2009	EHS
		<ul style="list-style-type: none"> Investigate options to reduce volumes of Wetline 2 rinse water. 	Q4, 2009	EHS/MET
		<ul style="list-style-type: none"> Investigate feasibility of redesigning the PTA product coating equipment to optimise process efficiency and reduce the volume of coating chemicals required by 20%. 	Q2, 2010	EHS/PTA

3.4.3 Objective 3- Minimise the Environmental Impact of Emissions to Air

Objective	Target	Action	Due Date	Responsibility
Air Emissions Management	Reduce emissions of greenhouse gas (GHG) generation by 2.5% from 2008 baseline.	<ul style="list-style-type: none"> Install a natural gas fired combined heat and power (CHP) plant. 	Q2, 2010	FET
	Reduce use of ozone-depleting hydro chlorofluorocarbons (HCFC's) on site.	<ul style="list-style-type: none"> Replace existing chillers with equipment that is compliant to the latest legislative requirements. 	Q4, 2014	FET

3.4.4 Objective 4 – Minimise the Environmental Impact of Non-Hazardous Waste

Objective	Target	Action	Due Date	Responsibility
Non-hazardous Waste Management	Divert 68% of non hazardous waste generated on site from Landfill.	<ul style="list-style-type: none"> Examine the feasibility of diverting waste toners and batteries for recycling by on-site segregation. 	Q2, 2009	EHS
		<ul style="list-style-type: none"> Implement awareness programme to optimise canteen composting. 	Q3, 2009	EHS

EHS = Environment, Health & Safety	MET = Metals Engineering Team	ET = BSC GALWAY Energy Team	FET = Facilities Engineering Team	QA = Quality Assurance	PTA = PTA value stream	
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4. RESIDUALS MANAGEMENT PLAN AND ENVIRONMENTAL LIABILITIES RISK ASSESSMENT

4.1 Residuals Management Plan (RMP)

In 2006, BSC Galway commissioned an external consultant to draw up a RMP for the site to outline a plan, including costs, for the decommissioning of the activity or part, thereof, to ensure minimum impact on the environment. This plan was submitted to the Agency in 2006. The total potential cost identified for the implementation of this plan for known liabilities was ca. €1,449,000.

4.2 Environmental Liabilities Risk Assessment (ELRA)

In 2007, BSC Galway commissioned an external consultant to draw up an ELRA for the operation to identify and cost any liabilities that might be incurred as a consequence of environmental pollution arising on the site, either directly or indirectly, as a result of conducting the licensed activities. This assessment, furthermore, indicated no additional potential costs from possible unknown liabilities due to the low potential risk and mitigation measures in place. The assessment was submitted to the Agency in 2007

4.3 Financial Provision for RMP & ELRA

Based on the RMP and the ELRA, the total required financial provision for the site to meet known and unknown liabilities was estimated at €1,449,000. Boston Scientific Corporation has put in place a Letter of Guarantee to cover the costs of the known environmental liabilities. As the activities conducted on site have not been materially altered the Letter of Guarantee as submitted to the Agency in 2007 still applies.

5. LICENCE SPECIFIC REPORTS

The following reports are included as Attachments to this report:

Attachment 1	Noise Monitoring Survey for 2008
Attachment 2	Solvent and Fugitive Emissions Plan for 2008