Boston Scientific Corporation – Galway

IPPC Licence Number P0725-01

Annual Environmental Report 2010

&

Environmental Management Programme 2011

Ballybrit Business Park, Galway, Co. Galway

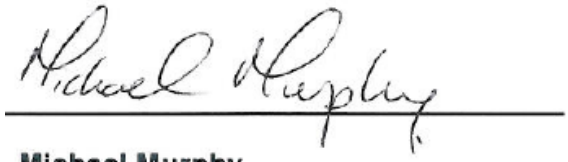
Opening Comments

This is Boston Scientific's fifth Annual Environmental Report (AER), and the story of continuous Environmental improvement continues.

During 2010 we achieved a 5% reduction in our greenhouse gas emissions (carbon dioxide). This was achieved through several energy initiatives, most notable among these being the reduction in Cleanroom Air changes during un-occupied times. We also continue to take advantage of the Combined Heat and Power (CHP) plant which has allowed us to replace the fuel oil in our boilers with natural gas as well as gaining increased efficiency in power generation.

The recycling initiatives introduced towards the end of 2009 helped us to recycle 75% of our non-hazardous waste in 2010.

All of the above environmental benefits have been gained through careful management of our environmental programme as an integral part of our business and we will continue this journey of improvement in cooperation with the EPA and other key stakeholders in environmental protection.



Michael Murphy
Director Site Services

Paul Mc Greal
EHS & Programs 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 therapies 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, neuromodulation, gastroenterology, pulmonary medicine, radiology, urology and vascular surgery.

The corporate headquarters is 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 2010. Reference has been made to the EPA Guidance Note for: "Annual Environmental Report" in preparing this report.

1.2 Environment Health and Safety (EHS) Policy

Environment, Health & Safety Policy

Protecting our Planet, our People and our Property

Boston Scientific believes 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 importance to Boston Scientific. 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 self-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 of solid and hazardous waste, and recycling wastes where feasible
- Optimizing energy and resource use and efficiency with a goal of reducing green house gas emissions
- Controlling and limiting 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.

Ray Elliott
President and CEO
13 November 2009

Leonard Sarapas
Corporate Director, EH&S
13 November 2009

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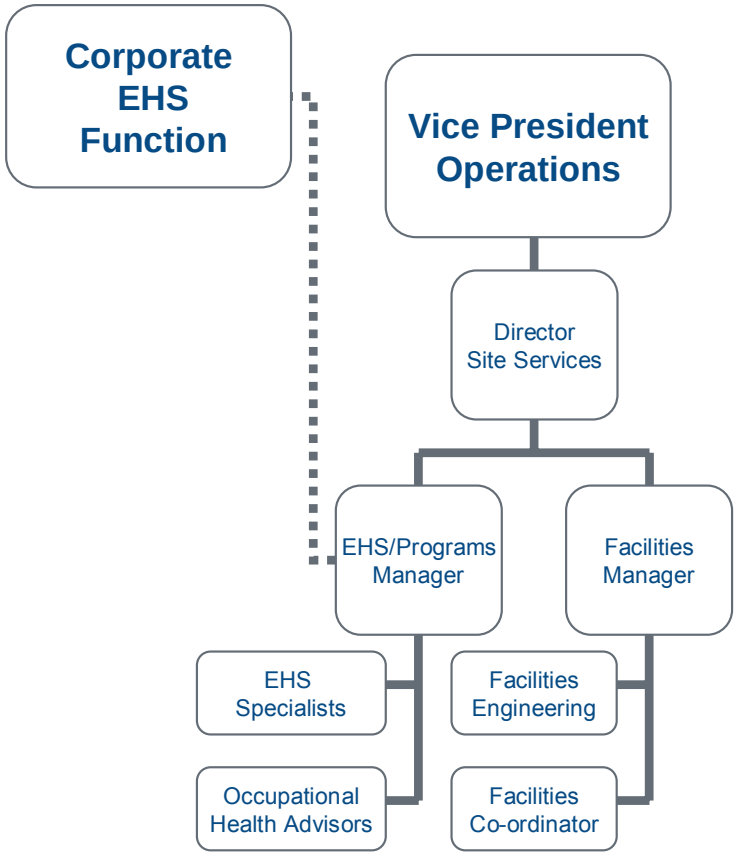
1.3 Organisation Chart for Environment, Health & Safety Management



2. SUMMARY INFORMATION

2.1 Monitoring Data

2.1.1 Emissions to sewer

There are two emission points for process 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	Emissions 2009 MEV	Emissions 2010 MEV	Licensed MEV
Volume (m^3)	7,182	7,634	27,375
Temperature Range (°C)	13 – 22	11 – 22	35 (max)
pH Range (Daily Average)	7.6 – 8.2	7.6 – 8.1	5 – 10
Other Parameters	**MEV kg**	**MEV kg**	**MEV kg**
BOD*	14,187*	11,396*	53,655*
COD	25,077	17,131	139,795
Suspended Solids	116	23	6,935
Sulphates	456	431	10,950
Detergents	7	8	2,738
Oils, Fats and Greases	7	23	2,738
Total Phosphorus (as P)	0.5	0.3	274
Cadmium (as Cd)	0.0004	0.0001	2.7
Copper (as Cu)	2	0.3	55
Lead (as Pb)	0.01	0.002	13.7
Zinc (as Zn)	0.7	0.2	13.7
Chromium (as Cr)	0.01	0.005	8.2
Nickel (as Ni)	0.02	0.001	8.2
Tin (as Sn)	BDL	0.003	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	Emissions 2009 MEV	Emissions 2010 MEV	Licensed MEV
Volume (m^3)	9,581	19,687	54,750
Temperature Range (°C)	12 - 21	9 – 20	35
pH Range (Daily Average)	7.9 – 8.5	7.7 – 8.3	5 – 10
Other Parameters	**MEV kg**	**MEV kg**	**MEV kg**
BOD*	14,187*	11,396*	53,655*
COD	2,617	2,397	279,225
Suspended Solids	91	108	13,870
Sulphates	596	1,013	21,900
Detergents	6	36	5,475
Oils, Fats and Greases	112	531	5,475
Total Phosphorus (as P)	9	226	548
Cadmium (as Cd)	0.002	0.001	5.48
Copper (as Cu)	2	2	110
Lead (as Pb)	0.01	0.01	27
Zinc (as Zn)	0.3	0.5	27
Chromium (as Cr)	0.02	0.2	16
Nickel (as Ni)	0.02	0.1	16
Tin (as Sn)	BDL	BDL	55

MEV = Mass Emission Value
BDL = Below detectable limits
** See text note below Table 2.2*

* 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, giving a combined annual mass ELV of 53,655 kg.

As can be seen from Tables 2.1 and 2.2 the annual mass emissions for all process effluent parameters for 2010 are all well below the emission limit values.

Table 2.3 outlines the individual IPPC Licence non-compliances that occurred during 2010 for process/trade effluent parameters.

Table 2.3 Trade Effluent Sewer Emissions – Non-compliance Summary

Date	Non-compliance	Cause	Corrective Action
27/01/2010	Intermittent failure of continuous monitoring of pH/Temp/Flow data for SE2	Review of monitoring equipment did not identify any issues, equipment failure attributed to extreme weather conditions	Operation of monitoring equipment reviewed
29/01/2010	Exceedance of hourly SE1 pH ELV. pH value of 4.9 recorded – limit 5	Cleaning of site purified water system RO membranes	Implemented procedure to notify EHS when cleaning RO membranes
12/07/2010	Failure of continuous monitoring SE1 pH probe	Probe failure	Probe replaced
11/02/2010 03/03/2010 14/04/2010 30/04/2010 03/06/2010 01/07/2010 12/08/2010 01/09/2010	Exceedance of the monthly SE2 ELV for Phosphorous for the months of January through August. Values (mg/l) of 17.2, 15.4, 14.0, 13.9, 18.8, 16.2, 12.1 & 10.7 were recorded – limit 10 mg/l	Carry over of phosphoric acid into rinse water released to drain	Diverted rinse water for collection and disposal as hazardous waste.
29/07/2010	Exceedance of the pH ELV for SE1 for a period of 5 hours, pH's values of 10.02, 10.12, 10.11, 10.07 & 10.01 recorded – limit 10	Rinsing of new carbon filtering media for the purified water treatment process. Carbon is replaced annually.	No corrective action implemented as pH was only marginally over limit and environmental impact was minimal

ELV = Emission Limit Value

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

2.1.2 Emissions to surface water

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	2009 Average Value	2010 Average Value
pH	7.2	7.0
Chemical Oxygen Demand (COD mg/l)	35	84
Total Organic Carbon (TOC mg/l)	<0.01	<0.01

2.1.3 Emissions to Air

The main emissions to air from the BSC Galway site are as a result of combustion to provide electricity, heat and hot water for the site and to control temperature and humidity in the cleanrooms.

There are 8 (no.) boilers and 1 (no.) CHP unit available to operating on the site as detailed in Table 2.5.

Table 2.5 Boiler and CHP Information

No.	Usage Plan	Fuel	Capacity	Operation Scenario
A1-1	Wilson Boiler	Diesel	700 kW	Demand driven
A1-2	Phase 1-2 Area Support Boiler	Natural Gas	1,450 kW	Support to CHP – demand driven
A1-3	Support Boiler	Dual Fuel Natural Gas/ Diesel	1,450 kW	Support to CHP – demand driven. Diesel use only in the event of interruption of NG supply
A1-4	Support Boiler	Dual Fuel Natural Gas/ Diesel	1,450 kW	Support to CHP – demand driven. Diesel use only in the event of interruption of NG supply
A1-5	Phase 3 Area Support Boiler	Natural Gas	1,450 kW	Demand driven if NG boilers cannot meet demand
A1-6	Back-up Boiler	Diesel	1,450 kW	Back-up in the event of interruption of NG supply
A1-7	Back-up Boiler	Diesel	640 kW	Back-up in the event of interruption of NG supply
A1-8	Back-up Boiler	Diesel	1,450 kW	Back-up in the event of interruption of NG supply
A1-9	CHP Plant	Natural Gas	1,088 kW	Full time

The CHP plant reduces the import of electricity by 999kWe and replaces 1088kWt of heat generated by our conventional boilers. The eight boilers and CHP plant provide a potential total of 11,129 kW (11MW) capacity for the site.

The CHP plant A1-9 is the primary thermal source, with boilers A1-2 and A1-5 acting as support boilers if demand requires. Boiler A1-1 is not tied into the natural gas pipeline on site and operates as a diesel fired boiler. The natural gas boilers A1-3 and A1-4 act as back-up boilers. The remaining diesel boilers A1-6, A1-7 and A1-8 are not operational under normal conditions.

The monitoring results for the boilers and CHP Plant are summarised in Table 2.6 and 2.7.

Table 2.6 Boiler Emissions

Emission Point	Combustion Efficiency (%)	Mass Emissions Tonnes NOx	Mass Emissions Tonnes SO_2
A1-1	79%	0.67	0.32
A1-2	93%	0.23	0.16
A1-3	93%	0.48	0.10
A1-4	94%	0.31	0.09
A1-5	95%	0.30	0.13
A1-6	92%	0.08	0.08
A1-7	87%	0.00	0.00
A1-8	87%	0.00	0.00
A1-9	63%	23.94	0.00

** Note: The 63.4% efficiency only represents the CHP electrical efficiency and does not include thermal 0.00*

Generator emissions

There are 4 (no.) generators available to operate 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 only provide a back-up power supply to the plant in the event of loss of normal power supply or loss of the CHP capacity. The emergency generators did not run in 2010 except for maintenance.

The monitoring results for the generators are summarised in Table 2.8.

Table 2.8 Generator Emissions

Emission Point	Combustion Efficiency (%)
A1-57	92.90
A1-58	92.92
A1-59	92.93
A1-60	92.98

The greenhouse gas emissions from the CHP, boilers and generators are summarised below in Table 2.9.

Table 2.9 Green House Gas Emissions Direct

Emission Points	2010 CO_2 Mass Emissions (Tonnes)	2009 CO_2 Mass Emissions (Tonnes)
Diesel Boilers/Generators A1-1, A1-6, A1-7, A1-8, A1-57, A1-58, A1-59 and A1-60	541	5,238
CHP A1-9	4,045	
NG Boilers A1-02, A1-03, A1-04, A1-05	1,730	

2.1.4 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 two designated noise-sensitive locations (NSL) in the vicinity of the site and also at selected boundary locations.

It is evident from the 2010 environmental noise survey that the Boston Scientific Corporation Galway facility is in compliance with the relevant noise conditions specified in Schedule B of its IPPC Licence. There were no tonal components or impulsive properties during the day-time or night-time periods at any of the monitoring locations. Noise emissions associated with the facility were not audible at either of the noise-sensitive locations.

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 2011, BSC Galway has set a goal to increase the percentage of non-hazardous waste diverted from landfill to 77% from the 2010 target of 75%

Table 2.10 quantifies the volume of non-hazardous waste that is recycled and the volume of all waste types arising on site.

Table 2.10 Waste Arising on Site

Waste Type	2009 Tonnes	2010 Tonnes
Non-hazardous Waste for Recycling	570	649
Hazardous Waste	468	469
Non-hazardous Waste to Landfill	242	210
Total Waste Arising on Site	**1,280**	**1,328**

Records for all 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 2.11 and Table 2.12 below.

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Table 2.11 Annual Non-hazardous Waste Arising

EWC Code	Waste Description	Main Source	Tonnes 2009	Further Treatment (Method, Location & Undertaker)	Recovery, Reuse or Recycling	Final Disposal (Method, Location & Undertaker)
15 01 06	General Waste	Non-recyclable waste	209.98	None	None	Landfill, Greenstar
15 01 01	Cardboard	Warehouse	138.30	Segregated on site	Recycled via Barna Waste	N/A
20 01 08	Compostable Waste	Canteen	131.11	Segregated on site	Composted via Barna Waste	N/A
15 01 03	Timber	Warehouse	104.21	Segregated on site	Recycled via Barna Waste	N/A
15 01 06	Mixed Recyclables	Site Wide	82.05	Segregated off site	Recycled via Barna Waste	N/A
20 01 01	Paper	Office Areas	55.25	Segregated on site	Recycled via Barna Waste	N/A
15 01 02	Plastic	Production	37.46	Segregated on site	Recycled via Barna Waste	N/A
20 01 40	Metal Scrap	Facilities / Canteen	57.42	Segregated on site	Recycled via Barna Waste	N/A
20 01 36	WEEE	Production	17.76	Segregated on site	Recycled via Barna Waste	N/A
20 01 02	Glass	Production/ Canteen	17.20	Segregated on site	Recycled via Barna Waste	N/A
20 01 25	Cooking Oil	Canteen	7.07	Segregated on site	Recycled via Frylite	N/A
08 03 18	Toners	Site Wide	0.98	Segregated on site	Recycled via HP	N/A
Totals			**859**			

Table 2.12 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 06*	Aqueous Acids	292.20	Physico-Chemical Treatment	Ireland	Enva (Shannon)
07 01 04*	Organic Solvents	79.25	Recovery	England	SRM Ltd (Mor)
07 05 13*	Solid Wastes	65.48	Incineration	Netherlands	ATM
15 02 02*	Absorbents & Filters	7.30	Incineration	Netherlands	ATM
13 08 99*	Oils	5.24	Incineration	Netherlands	ATM
15 01 10*	Empty Packaging	4.73	Incineration	Netherlands	ATM
07 01 99	Hydropass	3.59	Incineration	Netherlands	ATM
08 01 11*	Waste Paint	2.47	Incineration	Netherlands	ATM
16 06 01*	Batteries	1.80	Recovery	Ireland	Electrical Waste Management
16 05 08*	Glycerine	1.54	Incineration	Netherlands	ATM
20 01 35*	WEEE	1.50	Recovery	Ireland	KMK
13 03 10*	Ethylene Glycol	1.09	Incineration	Netherlands	ATM
18 01 03*	Bio-hazardous Waste	0.99	Autoclave	Ireland	Eco-Safe Systems Ltd
13 01 13*	Hydraulic Oil	0.66	Incineration	Netherlands	ATM
20 01 21*	Fluorescent Tubes	0.37	Recovery	Ireland	Irish Lamp Recycling Ltd
20 01 33*	Batteries	0.33	Recovery	Ireland	KMK
Totals		**469**			

2.3 Agency Monitoring & Enforcement

Agency Personnel visited the site four times during 2010

1. June 29th 2010 – The Agency attended the site to take process effluent and surface water samples at locations SE1, SE2 and SW1. All results complied with the emission limit values (ELV's) set out in the IPPC licence.
2. September 2nd 2010 - The Agency carried out an un-announced audit of the facility. The Agency found the site to be compliant to its IPPC Licence requirements and commended the facility on its environmental management.
3. September 14th 2010 – The Agency attended the site to take process effluent and surface water samples at locations SE1, SE2 and SW1. All results complied with the ELV's set out in the IPPC licence.
4. November 10th 2010 – The Agency attended the site to take process effluent and surface water samples at locations SE1, SE2 and SW1. 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

Table 2.13 below provides a summary of the annual energy, fuel and natural gas consumption and Table 2.14 provides the quantification of greenhouse gases associated with electricity generation and use.

Table 2.13 Electricity, Fuel & Gas Consumption

Item	2009 Quantity	2010 Quantity
Electricity (MWh) Imported	28,114	22,526
Electricity (MWh) CHP Generated	2,934	8,413
Fuel Oil (m^3)	1,105	0
Diesel (m^3)	198	202
Natural Gas (m^3)	869,944	2,864,085

Table 2.14 Electricity Greenhouse Gas Indirect Emissions

Item	2009 CO_2 Mass Emissions Tonnes	2010 CO_2 Mass Emissions Tonnes
Imported Electricity	11,527	9,235

Energy management forms a significant part of BSC Galway's environmental programme and the site has installed a natural gas fired, combined heat and power (CHP) plant which has resulted in the removal of fuel oil from the site and a reduction in greenhouse gas emissions.

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

Table 2.15 Water & Trade Effluent Emissions to Sewer

	2009 Volume (m^3)	2010 Volume (m^3)	Licensed Volume (m^3)
Total Site Water Use	103,183	101,407	N/A
Trade Effluent SE1	7,182	7,634	27,375
Trade Effluent SE2	9,581	19,687	54,750

2.4.3 Raw Material Consumption

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

1. Chemicals - Include adhesives and solvents required for the process. Received in small plastic/metal/glass containers (20 ml 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 $1m^3$ intermediate bulk containers (IBC).

2. Metals - Stainless steel/platinum chromium alloy are received in tubes weighing 10g - 500g. Wire is received in spools (approx. 200-300 g per spool). The stainless steel, platinum chromium alloy and wire are 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 uses Lean Manufacturing as its 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 to include a Lean Metric. Raw material usage and waste are controlled via a scrap improvement metric.

2.5 Environmental Incidents and Complaints

2.5.1 Environmental Incidents

There was no environmental incident in 2010. Incidents relating to licensed emission to sewer limit values have been recorded earlier in Table 2.3.

2.5.2 Environmental Complaints

No environmental complaints were received in 2010 from employees, the local community or businesses.

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, in accordance with the Corporate EHS Policy strives 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 environmental 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 system 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 2011, the status of the objectives and targets for 2010, and the proposed objectives and targets for 2011 are outlined in sections 3.2, 3.3, and 3.4 respectively.

3.2 BSC Galway Register of Aspects/Impacts for 2011

Aspect/Activity No. & Description		Impact	Environmental Concerns (EC)				Business Concerns (BC)				Total Rating (EC x BC)
			Severity	Frequency	Control	Sub Total (EC)	Legal	Public Image	Change Difficulty	Sub Total (BC)	
		Max scores>>>>>>>>>>>>>>>>>>>>>>>	5	5	5	15	3	3	3	9	135
A1	Energy & Resource Usage	Depletion of natural resources & creation of greenhouse gases	2	5	3	10	2	2	2	6	60
A2	Hazardous Waste	Natural resource depletion, contamination of land, sea, air & water	4	4	2	10	1	3	1	5	50
A3	Aqueous Discharges	Contamination of Galway Bay	1	4	3	8	2	2	2	6	48
A4	Major Emergency	Contamination of air, water and/or groundwater	2	1	3	6	2	3	2	7	42
A5	Emissions to Atmosphere	Air contamination & greenhouse gas creation	1	5	3	9	2	1	1	4	36
A6	Contaminated Land / Groundwater	Contamination of land or groundwater	1	4	3	8	2	1	1	4	32
A7	Non-hazardous Waste	Natural resource depletion, air, soil & groundwater contamination from landfill leachate & gas emissions	1	4	2	7	1	1	2	4	28
A8	Hazardous Materials	Contamination of air, land, soil or water & depletion of natural resources	2	4	1	7	1	2	1	4	28
A9	Contract Services	Air, noise, surface water, groundwater or soil contamination	2	4	1	7	1	1	2	4	28
A10	Environmental Noise	Noise pollution	1	5	1	7	1	1	1	3	21
A11	Visual Impact	Visual appearance	1	5	1	7	1	1	1	3	21
A12	Ecosystems	Damage to flora, fauna	1	4	1	6	1	1	1	3	18
A13	Transport	Air quality degradation, resource depletion and hazardous waste generation.	1	4	1	6	1	1	1	3	18
A14	Supply Side Activities	Contamination of air, land, soil or water & depletion of natural resources	1	4	1	6	1	1	1	3	18
A15	Product Stewardship	Contamination of air, land and depletion of natural resources	1	4	1	6	1	1	1	3	18
A16	Process, Equipment & Material Introduction	Depletion of natural resources, contamination of land, sea, air & water	2	1	2	5	1	1	1	3	15
A17	Decommissioned Plant or Equipment	Air, land or water contamination	1	3	1	5	1	1	1	3	15
At a minimum yellow shaded aspects are included in the current Environmental Management Programme											

3.3 Status Report on 2010 Schedule of Objectives and Targets

3.3.1 Objective 1 – Optimise Energy & Resource Usage and Reduce Emissions to Atmosphere

Impact/Target	Objective	Action	Due Date	Status
Management of Energy & Resource Use	Reduce the generation of greenhouse gas emissions by 3% from the 2009 baseline.	Identify and implement feasible energy saving projects derived from the site Energy Management LBP for example: • Reduction in clean-room air changes.	Q4, 2010	Complete
Management of Atmospheric Emissions	Eliminate use of ozone-depleting hydro chlorofluorocarbons (HCFC's) on site.	Replace existing chillers with equipment that is compliant to the latest legislative requirements.	Q4, 2014	Complete

Achievement: **The site reduced greenhouse gas generation by 7% from the 2009 baseline. One chiller using the HCFC R22 was replaced in 2010 and the site is on track to meet HCFC requirements by 2014.**

3.3.2 Objective 2 – Improve Control & Management of Hazardous Waste

Impact/Target	Objective	Action	Due Date	Status
Hazardous Waste Management	Reduce the volume of hazardous waste sent for incineration by 2% from 2009 baseline.	▪ Investigate options to segregate drug eluting stent sharp waste into reusable containers to reduce packaging volume being disposed as hazardous waste. ▪ Complete all bund repairs as identified in the December 2009 Bund Integrity report.	Q3, 2010 Q4, 2010	Complete On track

Achievement: **The site reduced volume of hazardous waste sent for incineration by 29% from the 2009 baseline. 75% of bund repairs completed, remaining minor non-structural repairs on external bunds are weather dependant and will be completed early in Q2.**

3.3.3 Objective 3 - Minimise the Environmental Impact of Aqueous Discharge and Contaminated Land/Groundwater

Impact/Target	Objective	Action	Due Date	Status
Minimise impact of Aqueous Discharges & Contaminated Land / Groundwater	Implement recommendations of 2010 CC TV Pipeline Survey.	• Repair all Grade Four observations identified in the Survey. • Repair all Grade Three observations identified in the Survey.	Q4, 2010 Q4, 2011	Complete On track

Achievement: **All grade four observations repaired.**

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

Impact/Target	Objective	Action	Due Date	Status
Non-hazardous Waste Management	Divert 75% of non-hazardous waste generated on site from Landfill.	• Identify infrastructure requirements needed to expand the diversion of canteen waste from landfill to recycling. • Identify additional potential waste streams to divert from landfill.	Q2, 2010 Q4, 2010	EHS EHS

Achievement: **The site recycled 75% of non-hazardous waste created on site.**

3.4 Proposed Schedule of Objectives and Targets

3.4.1 Objective 1 – Optimise Energy & Resource Usage and Emissions to Atmosphere

Impact/Target	Objective	Action	Due Date	Responsibility
Management of Energy & Resource Use	Reduce the volume of electricity required per DES product manufactured by 5% from the 2010 baseline.	Using the energy LBP, install individual meters in the DES area's to record the electricity required to manufacture DES products.	Q4, 2011	LBP Team/FET
Management of Atmospheric Emissions	Develop systems to carbon footprint DES products.	Using the energy LBP metering to record the volume of electricity required in DES areas.	Q2, 2011	EHS/FET
	Eliminate use of ozone-depleting hydrochlorofluorocarbons (HCFC's) on site.	Replace existing chillers with equipment that is compliant to the latest legislative requirements.	Q4, 2014	FET

3.4.2 Objective 2 – Improve Control & Management of Hazardous Waste

Impact/Target	Objective	Action	Due Date	Responsibility
Hazardous Waste Management	Reduce the volume of hazardous waste generated on site by 5% from 2010 baseline.	Complete the remaining bund repairs as identified in the 2009 Bund Integrity report.	Q2, 2011	EHS
		Divert small gas cyclinders and aerosol waste from hazardous waste by installing equipment to degass the gas and aerosol cyclinders.	Q3, 2011	FET

EHS = Environment, Health & Safety	FET = Facilities Engineering Team	LBP = Lean Business Process	DES = Drug Eluting Stent

3.4.3 Objective 3 - Minimise the Environmental Impact of Aqueous Discharge and Contaminated Land/Groundwater

Impact/Target	Objective	Action	Due Date	Responsibility
Minimise impact of Aqueous Discharges & Contaminated Land / Groundwater	Implement recommendations of 2010 CC TV Pipeline Survey.	Continue with recommendations identified in the 2010 CC TV Pipeline survey and repair the Grade Three observations.	Q4, 2011	FET

3.4.4 Objective 4 - Minimise the Environmental Impact of a Major Emergency

Impact/Target	Objective	Action	Due Date	Responsibility
Management of a Major Emergency	Expand of the onsite capability to deal with chemical spills.	Update the definition of chemical spills and roll out training to all site personnel.	Q2, 2011	EHS
		Provide additional training for the dedicated spill response team.	Q4, 2011	EHS

3.4.5 Objective 5 – Minimise the Environmental Impact of Non-Hazardous Waste

Impact/Target	Objective	Action	Due Date	Responsibility
Non-hazardous Waste Management	Divert 77% of non-hazardous waste generated on site from Landfill.	• Maximise diversion of canteen waste from landfill to recycling.	Q4, 2011	EHS/Canteen Staff

EHS = Environment, Health & Safety	FET = Facilities Engineering Team	LBP = Lean Business Process	DES = Drug Eluting Stent

3.5 Solvent Management

3.5.1 Solvent Management Plan

BSC Galway, as outlined in the Solvent and Fugitive Emission Plan (Attachment 1) complies with the requirements of S.I. No. 543 of 2002 (Emissions of Volatile Organic Compounds from Organic Solvents) Regulations 2002 and S.I. No. 165 (Emissions of Volatile Organic Compounds from Organic Solvents (Amendment) Regulations 2010.

BSC Galway meets the emission limit value (ELV) as defined in the Second Schedule of the Regulations in Activity Number 8, "*Other coating including metal, plastic, textile"* of 75mgC/Nm^3 in waste gases and a fugitive ELV of less that 20% of total solvent use. Additionally, BSC Galway meets the ELV's for solvents with the specified risk/hazard statements.

Table 2.16 Mass Balance of Solvent Usage and Emissions

	Kg 2010	Kg 2009
Solvent Consumption	54,389	55,446
Solvent Air Emissions	3,446	2,977
Solvent Waste Disposal	63,429	67,880
Fugitive Emissions	6,799	6,239

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. This plan is still valid although liability costs may now be somewhat less since the introduction of the combined heat and power plant in August 2009.

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	Solvent and Fugitive Emissions Plan for 2010
Attachment 2	Noise Monitoring Survey for 2010