



Environmental Stewardship

Management Approach

BD's management approach to Environmental, Health and Safety (EHS) embraces the same characteristics that describe how we manage every important aspect of our business. Our many success stories reflect our efforts to integrate EHS into our operating processes.

Continuous Improvement is a BD Core Value and has played a critical role in our EHS management approach for more than 20 years. Historically, BD has focused on meeting regulatory compliance in our manufacturing operations around the world. In many regions, we are now embarking upon new EHS initiatives that can generally be described as "beyond compliance."

On the environmental front, we are striving to reduce our environmental footprint through energy and water use reduction. In the health and safety arena, the Company is driving toward zero accidents both in our own workplaces and in the clinical settings of our customers – where incidence of healthcare worker infection through accidental needlesticks poses a risk.

We are also **reducing variation** in how we drive EHS performance within our businesses. We began to centralize the rollout of health and safety metrics and create a best practice repository at the corporate level in 2007. Plans are in place for environmental metrics and best practices to follow.

We have been gauging our progress and performance through a **comprehensive worldwide EHS compliance audit process**, which has been expanded to include a management system component that incorporates the principles of "Plan, Do, Check, Act."

We are confident that our management approach will enable us to realize our vision for EHS performance, a future state that is consistent with our commitment to *"Helping all people live healthy lives."*

Managing Suppliers' Impacts

BD conducts quality audits of key suppliers to ensure the quality of our products as well as an uninterrupted supply of materials. When the Company selects a supplier, that decision is based on the following criteria:

- Assurance of supply
- Service levels
- Cost
- Quality
- Innovation
- Regulatory impacts

Since 2007, BD has included social and environmental criteria in our finished goods supplier questionnaire. This supplier self-assessment requests responses about child labor, discrimination, forced labor and overtime, collective bargaining rights, sanitary facilities, benefits, ISO certification and more.



Safety and Environmental Programs and Procedures

The safety and environmental management system at BD begins with our corporate [Safety and Environmental Policy](#)

To ensure compliance with our corporate policy, applicable government regulations and good manufacturing practices, BD audits all of our manufacturing and distribution centers worldwide. We perform audits on a regular audit cycle with a follow-up visit within 12 months. Over the last five years, we have completed 72 internal audits of our operations and 43 follow-up reviews. Our intention is to continue to focus upon regulatory compliance while leading our operations toward a management systems approach. Toward this end, we have incorporated a management systems review into our on-going audit program. In addition, we have installed a database system for managing EHS issues in approximately half of BD's manufacturing locations.

Continuous Improvement: Environmental Performance

With the risks of climate change ever more prevalent and an increased focus on carbon regulations, BD is working more diligently than ever to expand on and develop stronger environmental performance programs. We currently work with our manufacturing sites to identify and reduce environmental impacts from their operations using Lean manufacturing tools and methodology. As BD moves toward establishing environmental reduction targets, this approach at the manufacturing level will support efforts to meet and exceed our goals.

Potential targets could be focused in the following high-priority areas:

- Energy use and greenhouse gas emissions
- Renewable energy use
- Water consumption
- Non-hazardous waste generation
- Hazardous waste
- Off-site recycling and waste recycled from production processes
- Ozone-depleting substances

Continuous Improvement: Reducing the Environmental Impact of Our Products

- Our research and development efforts and manufacturing processes includes **a review of the materials we use and the potential environmental effects** our products may have.
- We have in place **mechanisms designed to identify** chemical substances that are present in our product. These include efforts to identify chemicals utilized in our products through, for example, supplier surveys, and we consider safer alternatives to the extent they become available and are efficacious and cost-effective.
- We are **investing considerable resources in complying with various European Union ("EU") Directives**, such as the "VOC" Directive (which limits emissions of volatile organic compounds resulting from the use of organic solvents in certain activities and installations); the "WEEE" Directive (which deals with the reduction of waste from waste electrical and electronic equipment); and the new "REACH" Regulation (which requires that all chemicals



above certain volumes that are imported and/or used in the EU be registered, evaluated, authorized, and, in some cases, restricted by a new European Chemicals Agency).

- In particular, we also **actively monitor** the status of the medical device exemption from the EU's Restriction of Hazardous Substances ("RoHS") Directive, which requires that certain listed hazardous substances be reduced in new electrical and electronic equipment. In anticipation that the RoHS Directive exemption were no longer to apply, we are undertaking appropriate efforts. For example, with respect to electronic products that we sell or incorporate into our products, we have started to purchase computer hardware (e.g., screens, keyboards, printers) that complies with the RoHS Directive.
- We are also **developing a strategy to eliminate brominated fire retardants (BFR)** from products we sell. We have **surveyed our suppliers** with regard to their use of BFRs, which are contained in electronic components we purchase; we are seeking, and will evaluate, their products that do not contain BFRs and are efficacious and cost-effective.

Continuous Improvement: Lean Enterprise Manufacturing and Six Sigma

As part of BD's journey to greatness, we focus on increasing operational effectiveness through Continuous Improvement. The following elements of Continuous Improvement have resulted in substantial performance improvements:

- Procurement (Category Management)
- Lean Manufacturing
- Six Sigma
- Validation

BD has developed a number of innovative programs to reduce waste and thereby lower production costs. We drive these advances through our Continuous Improvement framework. The **Lean Initiative** is the latest platform for eliminating waste in our work processes. Encompassing a clear management philosophy and practical tactics, the Lean Initiative uses low-tech methods to prevent seven types of waste: inefficient processing, unnecessary motions, waiting, making too much, fixing defects, moving things and excess inventory. Lean manufacturing allows us to better understand processes and identify areas of wasted effort or materials. Using a highly focused team of operators, engineers, managers and support personnel, this initiative drives continuous improvement in BD operations and integrates with ongoing Six Sigma and High Performance Work Systems to help the Company achieve world-class levels of manufacturing.

BD's **Six Sigma initiative** complements Lean by focusing on the reduction of variation in process. This focus bolsters manufacturing, transactional and design processes, which ultimately results in improved cost efficiency and more robust products and services to BD customers. Some of our Six Sigma projects include: improving inventory accuracy, increasing forecast accuracy, telecommunications cost reduction, workman's compensation billing reduction, eliminating documentation errors, misclassification of expenses, improving compliance tracking and reducing the number of "short" shipments via UPS. Countless Six Sigma improvement project examples exist within Manufacturing Operations. The Manufacturing Six Sigma initiative is the oldest in the Company, begun in 1997.



The newest frontier in BD's Six Sigma initiative is **Design for Six Sigma (DFSS)**, where the goal is to design products better as they are brought to market. All three BD segments – BD Medical, BD Diagnostics and BD Biosciences – have seen improvements using DFSS. The plan is to fully integrate DFSS into BD's Global Product Design System (GPDS). Altogether, these projects result in significant savings for the facilities at which they are implemented. Information about each of these projects is available on our Six Sigma databases so they can be implemented at other BD facilities. The Company also publishes a newsletter, "Continuous Improvement and You," which highlights new initiatives, resources and success stories to provide associates with ideas and tools to improve their workplace and see what others have already achieved.

We have been working to improve our capability to validate manufacturing processes since 2002. **Validation** is a critical component of our Continuous Improvement business strategy and ensures that our processes consistently result in products that meet our customers' needs, with quality built into the system at each step. We developed a single standard and set of tools using industry best practices that allow our scientific and engineering community to accurately characterize risks within our manufacturing processes and design appropriate controls within the system. BD's validation efforts are led by a worldwide cross-Unit and Regional Core Team, which has developed technology-specific Validation Toolkits. This Core Team also provides ongoing training and education to BD associates at all levels to assure we maintain our expertise in validation in a continually changing environment.

Certification Status

Many BD facilities have implemented environmental management systems that conform to ISO 14001, a voluntary international standard. The following sites have received third-party certification to ISO 14001:

- BD in Brazil, Curitiba
- BD in Ireland, Drogheda
- BD in Ireland, Dun Laoghaire
- BD in Mexico, Nogales
- BD in Puerto Rico, Cayey
- BD in Singapore, Tuas
- BD in Singapore, Yishun
- BD in Spain, Fraga
- BD in Spain, San Agustin
- BD in Sweden, Helsingborg
- BD in UK, Plymouth
- BD in UK, Swindon
- BD in USA, Sandy, Utah

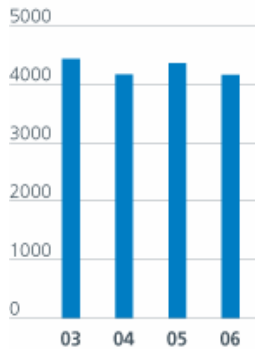


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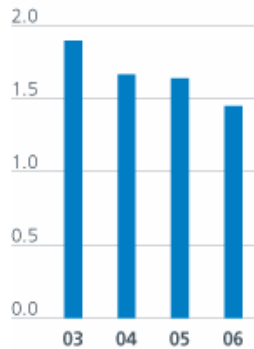
Energy Use and Greenhouse Gases

BD strives to reduce energy use to reduce costs and the environmental impacts associated with producing and using energy, including greenhouse gas emissions. In 2007, BD formed a North American Energy Team to focus efforts on energy efficient facilities and to foster collaboration on energy best practices. The charts below show the total amount of energy BD purchased and self-generated worldwide. Self-generated energy is a result of cogeneration systems, which produce electricity plus either steam or hot water for site operations using one fuel (typically natural gas), thereby greatly increasing fuel efficiency and decreasing the site's use of purchased electricity. From fiscal years 2003 to 2006, BD's absolute energy use decreased 6.0 percent. When normalized to the Cost of Products Sold, BD's energy use has decreased 24 percent per dollar of product cost.

Energy Use
(Thousand gigajoules)



Energy Use
(Gigajoules per \$1000)



In this report, BD has chosen to report environmental performance measurements in both absolute and normalized terms. By normalizing our environmental performance data we are able to account for increases and decreases in production over time. Due to the diversity of our products, normalizing our data based upon units of production at a worldwide level would not provide a meaningful reference. We have instead used Cost of Products Sold, as published in the BD Annual Report each year.

Renewable Energy at Sandy, Utah, Facility

BD is working to reduce consumption, monitor our carbon footprint and reduce our impact on global warming. The BD Medical facility in Sandy, Utah provides one example. The facility has committed to the largest renewable energy purchase in Utah to date by agreeing to buy 2,944 100-kilowatt-hour blocks of renewable energy each month through Rocky Mountain Power Company's Blue SkySM program. Converting 10 percent of its electricity use to renewable energy sources in 2007 distinguishes this BD location as the fourth largest Blue Sky customer in the western U.S. Each year, BD Medical's Blue Sky purchase is estimated to offset 3,533 tons of carbon dioxide emissions, providing annual environmental benefits equivalent to a reduction in driving of 7.5 million miles or planting approximately 1,388 acres of trees. This purchase demonstrates our commitment to sustainable growth and the long-term health of the environment.

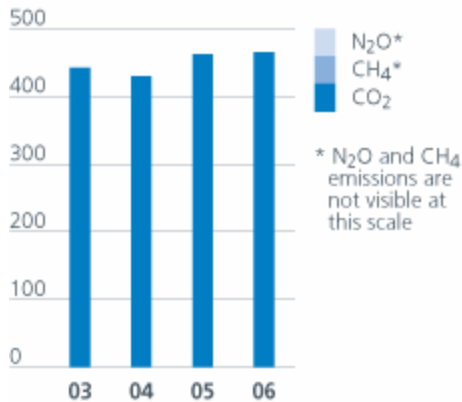


Greenhouse Gas Emissions

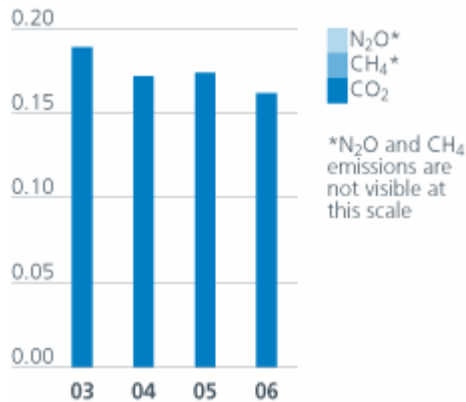
Carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) are the three primary greenhouse gases. The other key greenhouse gases – HFCs, perfluorocarbons (PFCs), or sulphur hexafluoride (SF₆s) – are not used or emitted by BD. Increased emissions of greenhouse gases increase the heat trapped in the Earth’s atmosphere, with potentially serious consequences. BD calculates CO₂, CH₄ and N₂O emissions based on our fuel and electricity use, using protocol from the “Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance for Direct and Indirect Emissions from Stationary Combustion Sources.”

For calendar year 2006, our greenhouse gas emissions included approximately 465,000 metric tons of CO₂, 9 metric tons of CH₄ and 7 metric tons of N₂O. From calendar year 2003 to 2006, total absolute greenhouse gas emissions increased 5.2 percent, while normalized greenhouse gas emissions decreased 14.3 percent. The slight increase from 2005 to 2006 was due to several expansions at our manufacturing sites throughout the world. BD is able to control our normalized emissions of CO₂ because of continued attention to energy efficiency at our manufacturing sites.

Total Greenhouse Gas Emissions
(Thousand metric tons)



Total Greenhouse Gas Emissions
(Metric tons per \$1000)

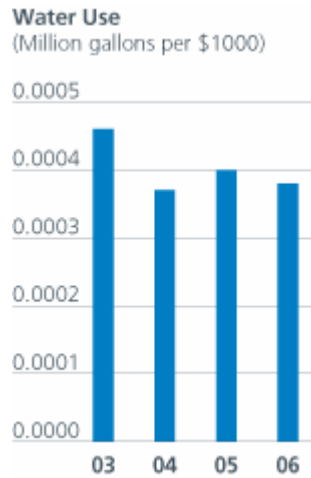
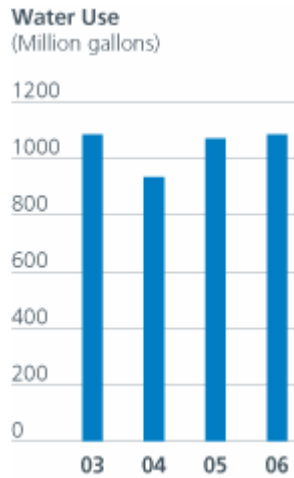




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Water

Water is a precious resource, and BD encourages efforts to conserve water in our processes and operations. BD tracks water use at our facilities worldwide. Over the four-year period from calendar year 2003 to 2006, our water use, when normalized to Cost of Products Sold, decreased 18 percent.





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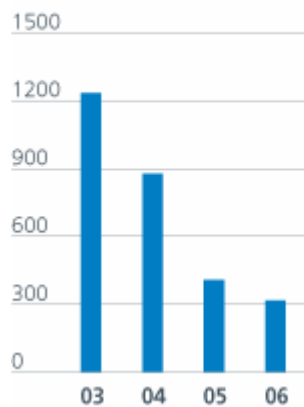
Emissions, Effluents and Wastes

Ozone-depleting Substances

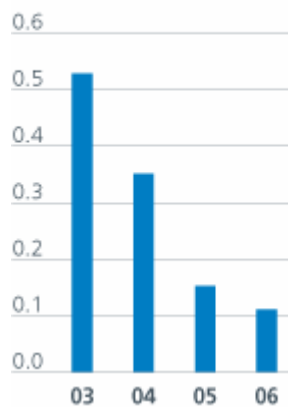
Ozone-depleting substances (ODSs) include chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, methyl bromide, carbon tetrachloride and methyl chloroform. ODSs degrade under intense ultraviolet light in the stratosphere. When they break down, they release chlorine or bromine atoms, which then deplete ozone.

As the data indicates, absolute emissions of ODSs by BD sites have decreased by 74.2 percent from calendar year 2003 to 2006 and normalized emissions by 29 percent. This decrease can be attributed to our solvent replacement program. Our goal is to completely eliminate ODSs from our production processes.

Ozone-Depleting Substances Emitted
(Thousand pounds)



Ozone-Depleting Substances Emitted
(Pounds per \$1000)



Spills

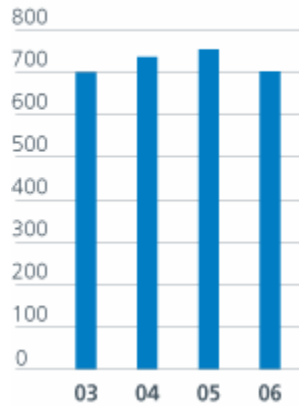
BD had no significant spills during calendar year 2006.



Water Discharged

BD tracks the total volume of water discharged from our facilities worldwide, and we strive to reduce water discharges. From calendar year 2003 to 2006, the absolute amount of water discharged increased 0.5 percent, due to increased production at our facilities. When normalized to the Cost of Products Sold, however, the data shows a decrease over this period of 18.1 percent.

Water Discharged
(Million gallons)



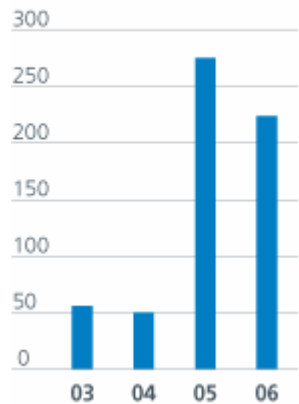
Water Discharged
(Million gallons per \$1000)



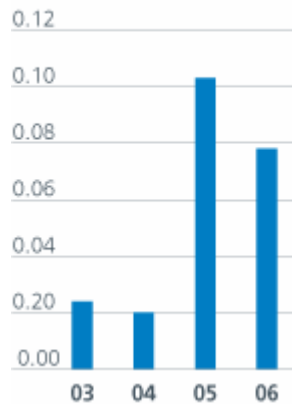
Hazardous Materials

BD tracks hazardous materials that are disposed of, emitted into the atmosphere or recycled. Hazardous materials, as defined by BD, include still-bottoms, lubricant deposition, printing inks, ethylene oxide and non-CFC/HCFC degreasing and cleaning solvents. For calendar year 2003 to 2006, hazardous materials emitted increased 300.1 percent. This increase was due to the substitution of a volatile organic compound (VOC) as part of our program to eliminate ozone depleting compounds from our manufacturing process. The amount of hazardous materials disposed of decreased 71.1 percent from calendar year 2003 to 2006.

Hazardous Materials Emitted
(Thousand pounds)

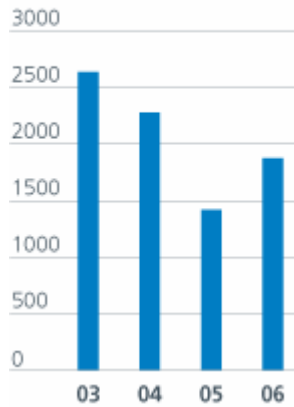


Hazardous Materials Emitted
(Pounds per \$1000)

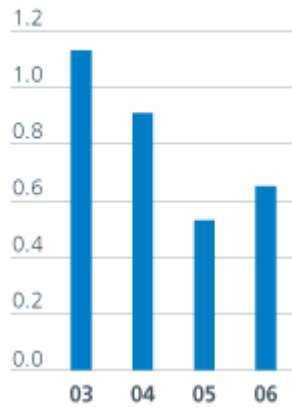




Hazardous Materials Disposed
(Thousand pounds)



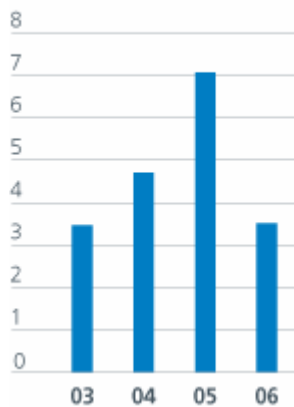
Hazardous Materials Disposed
(Pounds per \$1000)



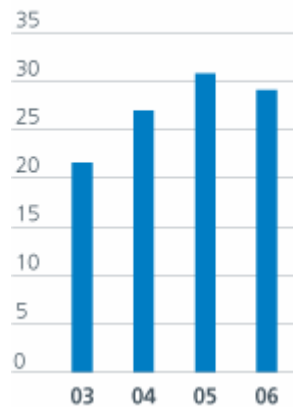
Nonhazardous Waste

BD tracks nonhazardous waste that is landfilled, incinerated or recycled. From calendar year 2003 to 2006, the Company increased landfilling of nonhazardous waste by 34.4 percent, decreased incineration by 30.5 percent and increased recycling of these wastes by 1.6 percent. The total amount of nonhazardous waste generated increased 14.1 percent over this period.

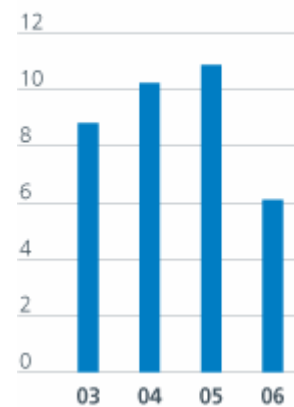
Non-Hazardous Waste Recycled
(Million pounds)



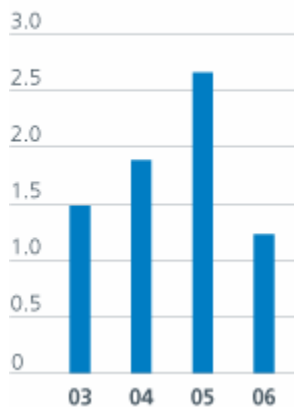
Non-Hazardous Waste Landfilled
(Million pounds)



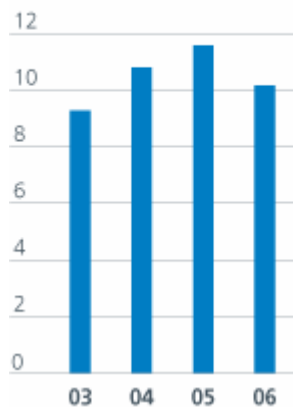
Non-Hazardous Waste Incinerated
(Million pounds)



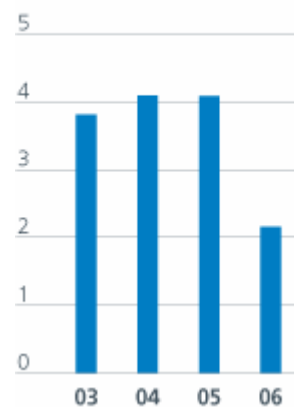
Non-Hazardous Waste Recycled
(Pounds per \$1000)



Non-Hazardous Waste Landfilled
(Pounds per \$1000)



Non-Hazardous Waste Incinerated
(Pounds per \$1000)



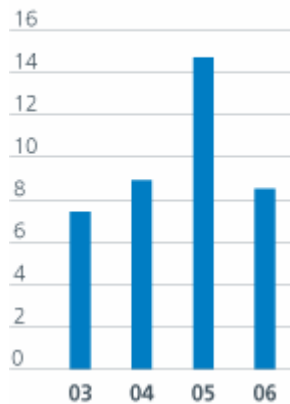


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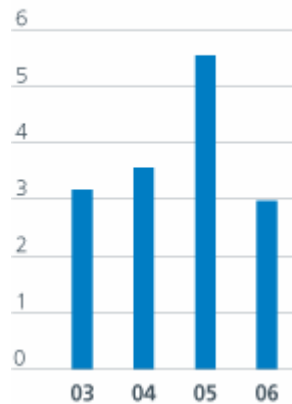
Recycling of Packaging

From 2003 to 2006, BD increased the amount of packaging material that is recycled offsite by 15.3 percent. The Company encourages sites to recycle packaging instead of disposing of it and to reduce the amount of packaging used whenever feasible.

Packaging Recycled Offsite
(Million pounds)



Packaging Recycled Offsite
(Pounds per \$1000)



Products and Services

BD is concerned about the potential environmental, health and safety (EHS) impacts of the products we develop for the marketplace and in our manufacturing, distribution and administrative operations. In the marketplace, for instance, BD Biosciences saves both time and money for pharmaceutical and biotechnology companies pursuing the development of new drugs. These companies screen hundreds of thousands of compounds to identify suitable drug candidates.

Eliminating toxic compounds early in the process can save them time and money. By combining technologies from BD Biosciences units, BD has been able to offer *in vitro* drug toxicity tests that provide high-value solutions to pharmaceutical customers. Screening in the early stages of drug discovery increases productivity and helps researchers focus on promising drug candidates early in the process.

BD offers a wide range of products for the safe collection and disposal of sharps products (needles, syringes and other devices) after use. BD sharps collection products meet all sharps collector standards, including those of the U.S. Food and Drug Administration (FDA), the U.S. Occupational Safety and Health Administration (OSHA) Bloodborne Pathogen Standard, the U.S. Environmental Protection Agency (EPA) and the National Institute for Occupational Safety and Health (NIOSH). BD recognized early on that single-use disposable medical products pose environmental challenges. However, these products are key to preventing the spread of disease from the reuse of potentially contaminated syringes. The public health benefits of single-use disposable syringes offsets the environmental issues associated with their disposal.



Compliance

BD believes that our operations comply in all material respects with applicable environmental laws and regulations. Compliance has not had, and should not have, a material adverse effect on BD.

BD is a party to a number of Federal proceedings in the United States brought under the Comprehensive Environment Response, Compensation and Liability Act, also known as "Superfund," and similar state laws. The affected sites are in varying stages of development. In some instances, the remedy has been completed, while in others, environmental studies are commencing. For all sites, other potentially responsible parties may be jointly or severally liable to pay all cleanup costs.