

## **Primer for Producer Responsibility Meeting 9/23/08**

### **Definitions:**

**Product Stewardship** refers to a process (adopted by PSI) to encourage manufacturers to take increasing responsibility to reduce the entire life-cycle impacts of a product and its packaging – energy and materials consumption, air and water emissions, the amount of toxics in the product, worker safety, and waste disposal – in product design and in the end-of-life management of the products they produce. The responsibility for reducing product impacts should be shared among industry (designers, manufacturers, and retailers of products or product components), government, and consumers.

**Producer Responsibility (PR) or Extended Producer Responsibility (EPR)** is a strategy designed to promote the integration of environmental costs associated with products throughout their life cycles into the market price of the products. Extended producer responsibility imposes accountability over the entire life cycle of products and packaging introduced on the market. This means that firms, which manufacture, import and/or sell products and packaging, are required to be financially or physically responsible for such products after their useful life. They must either take back spent products and manage them through reuse, recycling or in energy production, or delegate this responsibility to a third party, a so-called producer responsibility organization (PRO), which is paid by the producer for spent-product management. In this way, EPR shifts responsibility for waste from government to private industry, obliging producers, importers and/or sellers to internalise waste management costs in their product prices. EPR has been implemented in many forms, which may be classified into three major approaches: Regulatory, Negotiated, or Voluntary.

**Individual Producer Responsibility** is where individual manufacturers are directly (financially and or physically) responsible for their own products at end of life. This creates the strongest feedback loop to encourage design for recyclability, etc.

**The Product Stewardship Institute (PSI)** is a national non-profit membership-based organization located in Boston, Massachusetts. PSI works with state and local government agencies to partner with manufacturers, retailers, environmental groups, federal agencies, and other key stakeholders to reduce the health and environmental impacts of consumer products. PSI takes a unique product stewardship approach to solving waste management problems by encouraging product design changes and mediating stakeholder dialogues.

### **PSI is involved in the following priority product categories:**

- Carpet
- Electronics
- Fluorescent Lighting
- Gas Cylinders
- Medical sharps
- Mercury products
- Paint
- Pesticides
- Pharmaceuticals
- Phone books
- Radioactive devices
- Thermostats
- Tires

## **Carpet**

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Approximately 2.7 million tons of carpet and rugs are disposed of annually, representing about 1.2 percent of the municipal solid waste stream. Carpet was an early candidate for product stewardship for several reasons. First, while carpet does not pose a toxicity hazard, it is a bulky item that represents a cost to generators for handling and disposal. Second, certain carpet manufacturers adopted product stewardship as an operating principle, offering early take-back programs and recycled content products.

The National Carpet Recycling Agreement was signed by a consortium of industry representatives, including carpet and fiber manufacturers, the Carpet and Rug Institute, fifteen state and local government agencies, nongovernmental organizations, and the U.S. Environmental Protection Agency. PSI became a signatory of the agreement in January 2004. The agreement's initial ten-year plan has set a nationwide goal of 40 percent for diverting carpet from landfills. The agreement also establishes the roles and responsibilities for the Carpet America Recovery Effort (CARE), an industry-led, third party organization that will assist in the development of a carpet collection and recycling infrastructure, and identify viable markets for post-consumer carpet. Starting in 2003, CARE began to publish an annual report outlining the results of its efforts. By increasing the availability of recycled carpet fiber, manufacturers can expect an abundant source of feedstock, increasing the amount of recycled-content carpeting in the marketplace.

## **Electronics**

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Used electronic products are the most rapidly growing waste problem in the world due to their quantity, rapid obsolescence, and toxicity. The National Safety Council estimated that more than 300 million computers became obsolete in the United States in 2004. The International Association of Electronics Recyclers projects that 1 billion computers will be scrapped worldwide by 2010, at a rate of 100 million units per year. Electronic wastes contain toxic substances, including lead, mercury, cadmium, lithium, brominated flame-retardants, and phosphorous coatings. These toxic materials can be released upon disposal, posing a threat to human health and the environment. Inconsistencies in worker safety and environmental protection mean potential liability concerns for those sending electronics to recycling facilities – especially if these facilities are located in developing countries. In addition, domestic recycling markets for some collected materials are not fully developed. State and local governments have neither the existing collection and recycling infrastructure, nor the necessary funds to properly manage electronics.

## **Fluorescent Lighting**

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Fluorescent Lamps are an environmental paradox: they are environmentally sound because they use a fraction of energy to produce light compared with the incandescent lamps that they replace. They also last up to 10,000 hours, while many incandescent bulbs fail at 1,500 hours. But, they do contain a small amount of mercury, a harmful neurotoxin that should not be disposed of in landfills or incinerators. The number of fluorescent bulbs is also growing rapidly due to effective marketing by manufacturers, large retailers, and environmental/conservation groups. More than a half billion fluorescent lamps are now sold annually, and large numbers of spent lamps are already

entering the waste stream. Since they can release mercury into the environment, these lamps must be recognized as a special waste and managed responsibly.

PSI is currently involved in three projects related to fluorescent lighting: (1) Convening a national dialogue for the negotiation of strategies to address key issues, (2) Conducting a pilot project to collect fluorescent lamps and thermostats from retail locations, and (3) Expanding Washington's Take It Back Network.

Other Initiatives:

Retailer programs – Ikea, Home Depot, Ace Hardware, Wal-Mart, Various state programs, some local requirements including Santa Clara County.

### **Gas Cylinders**

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Millions of households nationwide have refillable propane gas tanks for use with barbecue grills and other appliances. Many others use non-refillable one-pound gas cylinders (which can contain a variety of gases) for camping, and still others use larger propane tanks for their RV's, heating, or mechanical purposes. Pressurized gas cylinders can be a convenient and safe way of supplying energy, but disposing of cylinders (no matter the size) requires caution, as leftover gas is likely to combust if cylinders are punctured and/or ignited. Accidentally shredding some kinds of gas cylinders can result in explosions powerful enough to damage equipment and buildings, and place waste workers at risk of serious injury.

In 2003, PSI worked with SEMASS, a Massachusetts solid waste combustion facility, to address issues related to refillable propane tank disposal. PSI also worked with Sarasota County, Florida, and the Florida Department of Environmental Protection to address similar issues related to the collection and management of non-refillable gas cylinders. The results of these initiatives have pointed to clear paths forward for gas cylinder stewardship.

Louisiana has implemented a 20-pound tank takeback program as state code. In the summer of 2002, Indiana created a statewide takeback program through the initiative of their state level Propane Gas Association and in cooperation with state propane distributors.

### **Medical Sharps**

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It is estimated that over 3 billion disposable needles and syringes and an additional 900 million lancets (collectively called "medical sharps") enter the municipal solid waste (MSW) stream each year in the United States from two main sources: those managing their own health care at home by self-injecting medication (representing two-thirds of the needles used) and intravenous drug users. People living with diabetes generate a majority of these sharps, while the remainder is used by people treating themselves for a wide variety of other medical conditions as well as injection drug users. As self injection of medications becomes an increasingly popular mechanism for drug delivery, the number of home medical sharps is expected to increase significantly. Self-injectors

routinely discard medical sharps in MSW generated in homes and in public settings, recycling bins (in plastic containers), and down toilets.

These disposal methods create the potential for injury or the transmission of infectious diseases to homeowners, as well as sanitation workers, sewage treatment plant operators, and waste management personnel at transfer stations, recycling plants, and disposal facilities. They are also a hazard for hospitality workers at restaurants, hotels, airports, and other locations. In addition, since people dispose of needles almost everywhere, sharps can pose a basic hazard to the general public. They also create costly maintenance problems when loose sharps become jammed in equipment, causing damage to the machines as well as the people that try to dislodge them. PSI is in the process of developing solutions to the medical sharps issue through a multi-stakeholder dialogue. Participants will explore ways to educate those using sharps about the problem, provide convenient access to a safe collection system, change behavior to increase compliance, and develop a cost-effective system that is financially sustainable.

PSI is currently conducting a national dialogue for the safe disposal of used medical sharps in cooperation with the Coalition for Safe Community Needle Disposal. A Project Summary has been developed, serving as a "single text" to be updated as new information is obtained. PSI has conducted background research, including interviews with representatives from the medical sharps industry, government agencies, and other key stakeholders. The research and interviews were used to develop the Product Stewardship Action Plan for Medical Sharps, which includes an issue statement, dialogue goals, key issues, and potential solutions. The Action Plan will serve as the basis for four face-to-face Dialogue Meetings with key stakeholders. The First Dialogue Meeting for Medical Sharps took place on May 21-22, 2008 in Boston. The second meeting is scheduled to take place in September 2008 in Sacramento, California and will bring key stakeholders together to discuss progress made on key issues and suggestions that were identified during the first meeting. By developing a national consensus on best management practices for safely disposing of needles, the PSI medical sharps project intends to solve a public health and safety issue.

## **Mercury Containing Products**

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Mercury is a highly toxic material present in a number of consumer and industrial products, including thermostats, thermometers, fluorescent lamps, electric switches, batteries, manometers and other measuring devices, toys, and novelties. These products can lead to contamination when thrown in the trash, where they might be crushed, incinerated, or otherwise mismanaged in a way to cause airborne releases, after which mercury falls back to earth in rainwater. People can get exposed to mercury by eating contaminated fish. Nearly every state in the country has issued mercury fish consumption advisories, warning their citizens to restrict their intake of fish due to mercury contamination. Primarily due to maternal fish ingestion, the number of babies born each year in the United States with mercury in their blood at levels posing adverse developmental risks may be as high as 630,000 (an estimated 15.7% of annual births). The U.S. Environmental Protection Agency and state and local governments are working to reduce mercury pollution through a number of strategies, including eliminating non-essential uses of mercury, increasing recovery and recycling, and promoting the use of non-mercury alternatives.

## **Paint**

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"What should I do with my leftover paint?" This is a question that nearly every person in the United States faces, whether in the role as a private citizen, paint retailer, paint manufacturer, painting contractor, or government employee. The U.S. Environmental Protection Agency (EPA) estimates that about 10 percent of all paint purchased in the United States becomes leftover – around 64 million gallons annually. The cost for municipalities to manage leftover consumer paint averages \$8 per gallon, making paint a half a billion dollar per year management cost. Retailers and manufacturers also manage millions of gallons of surplus and off spec paint, paint with damaged packaging, and paint returned by customers. PSI is working with U.S. EPA, state and local governments, manufacturers, retailers, paint recyclers, paint contractors, and environmental/consumer advocates to develop leftover paint management solutions that are both financially and environmentally sustainable.

Since December 2003, the Product Stewardship Institute (PSI) has facilitated a national dialogue aimed at reducing the generation of leftover paint, while increasing reuse and recycling opportunities. With the avid support of over 200 dialogue participants, these discussions resulted in an historic agreement mediated by PSI in October 2007 among paint manufacturers, government agencies, paint recyclers, painting contractors, and other participants. The agreement calls for the establishment of an industry-funded Paint Stewardship Organization that will collect and manage leftover paint using a pass-through cost to consumers. The agreement also commits stakeholders to conduct a Demonstration Project in the State of Minnesota, scheduled to begin in July 2008, with the full program to be rolled out to additional states beginning in 2009. The three-year agreement will be facilitated by PSI.

There is a National Volatile Organic Compound Emission Standards for Architectural Coatings. Also some state and local initiatives including Clark County takeback project.

## **Pesticides**

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Pesticides can pose risks to human health and the environment, and they are used and disposed of in significant quantities. Currently, there is a lack of collection programs due to the high costs of collection and the lack of funding. There are numerous opportunities for pesticide manufacturers, retailers, and other industry stakeholders to join with government officials to reduce the impacts from pesticide manufacture, use, storage, and disposal.

PSI is currently investigating opportunities to work on pesticide issues with key stakeholders. PSI began its preliminary research on the topic in December 2000, when it developed a Draft Product Stewardship Action Plan with the help of a group of state and local government officials. This draft Action Plan was presented and discussed at the national Product Stewardship Forum coordinated by PSI in December 2000. This draft document is a very early sketch of ideas floated on ways to develop product stewardship solutions in this product sector.

In the Pacific Northwest, a Regional Pesticide Coordinating Committee is working to promote pesticide-reduction strategies, coordinate messages in public outreach efforts, and set priorities to focus the otherwise-dispersed efforts of state and local governments.

Participants include Oregon and Washington state environmental agencies, local county and city governments such as Portland Metro, Thurston and King Counties, City of Seattle, the Local Hazardous Waste Management Program in King County, as well as some NGOs and consultants.

Ag Container Recycling Coalition (ACRC) The ACRC is a non-profit organization that safely collects and recycles plastic pesticide containers. The ACRC is fully funded by member companies and affiliates that formulate, produce, package, and distribute crop protection and other pesticide products.

## **Pharmaceuticals**

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Pharmaceutical products are ubiquitous in our lives; millions of pharmaceuticals become wastes each year as products pass their expiration date, become unwanted, or patients die. Ongoing studies reveal that pharmaceuticals are escaping into the environment and that some classes can act as endocrine disruptors, which have been linked to abnormalities and impaired reproductive performance in some species. Pharmaceutical wastes present both wastewater and solid waste management issues. Currently, there is a lack of understanding as to whether there are convenient, consistent, legal, and safe ways to dispose of unwanted pharmaceuticals. This has led to environmental damage, as well as to unsafe storage practices that have resulted in accidental poisonings. Currently, residents are often instructed to flush unwanted pharmaceuticals down toilets, leading to potential contamination of surface waters, ground waters, and biosolids, and resulting in exposure to aquatic organisms. When residents dispose of pharmaceutical products in the garbage, these products present potential safety risks to the general public and to solid waste collection workers.

Over the past two years, PSI has received funding from multiple state and local agencies to develop product stewardship approaches for the end of life management of unwanted/waste pharmaceuticals. The primary goals of this project include evaluating the need for a nationally coordinated system for the management of unwanted/waste pharmaceuticals that allows for multiple solutions to reflect local/regional differences, and increasing the safe, legal, and environmentally protective collection and/or disposal of unwanted/waste pharmaceuticals through the development of best management practices. PSI drafted a Project Summary as a tool to develop consensus among diverse stakeholders and used this document as the foundation for a Pharmaceuticals Product Stewardship Action Plan, which incorporates multiple key stakeholder interviews and other research. The main goals of the PSI multi-stakeholder dialogue are to increase awareness and to create a national, sustainable system for the end of life management of waste/unwanted pharmaceuticals. The second of four face-to-face national dialogue meetings will take place in the fall of 2008 to follow up on suggestions and concerns raised by various stakeholders during the first conference in Sacramento.

Several international, national, state and local initiatives are listed on the PSI website.

## **Phone books**

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Telephone books are a handy resource for residents needing the phone number of a neighbor or a list of local service providers. For businesses, especially those that provide goods and services to consumers locally, phone directories offer an effective

way to reach potential customers. Telephone books, however, represent significant tonnage in the waste stream (660,000 tons per year). In recent years, the number of phone books delivered to households and businesses has increased, with two or more competing companies now publishing and distributing books in similar or overlapping geographic areas. Most residents and businesses lack a way to “opt out” of receiving those they don’t want. In addition, phone book recycling presents challenges. Phone books are made with a low grade of paper, and are sometimes distributed with materials that become contaminants in the recycling process (e.g., magnets and plastics), which represents a problem for certain end-use applications. Local governments currently bear costs to recycle and/or dispose of phone books, and some areas experience limited or absent opportunities to recycle. Regardless of the relative availability of recycling options, source reduction is an environmentally efficient approach that cuts across all scenarios.

In the spring of 2006, PSI was asked by several state and local government officials to develop a national solution to issues related to the management of phone books. Led by King County (Washington) and the National Waste Prevention Coalition, PSI successfully leveraged funding from over 10 federal, state, and local government agencies and began work on this issue in July 2006. PSI conducted background research, including interviews with representatives from telephone companies, phone book distributors, recyclers, government agencies, and other key stakeholders. An initial Project Summary was developed that served as a “single text” that was updated as new information was obtained. The research and interviews were then used to develop a Product Stewardship Action Plan for Phone Books, which served as the basis for two face-to-face meetings with key stakeholders. The Action Plan includes an issue statement, dialogue goals, key issues, and potential solutions. The goal of the dialogue is to develop a collaborative agreement to minimize the environmental impact of directory production and distribution. Following the second meeting, representatives from the two major industry trade associations issued Joint Environmental Guidelines that include a voluntary pledge by individual publishers to address the following key issues:

- Opt-out (subscribers can request NOT to get the phone book).
- Environmental production components (e.g., use of recycled content, soy inks, etc.).
- Recycling best practices.

There are several state initiatives or legislation listed on the PSI website.

## **Radioactive Devices**

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Radioactive materials are present in numerous types of devices used in various medical, commercial, and industrial sectors. These products represent minimal risk to public health during use since the radioactive materials are encased to prevent the escape of radiation. However, if the device is damaged or disassembled, these radioactive sources can potentially contaminate the environment and pose a risk to human health. Therefore, devices containing radioactive material become radioactive sources of concern as they become unwanted, abandoned, lost, stolen, or improperly disposed. The Product Stewardship Institute was awarded an EPA grant to identify and implement product stewardship solutions for two types of devices containing radioactive materials: tritium exit signs and fixed nuclear gauges. Fixed nuclear gauges are used to monitor and measure parameters such as density, thickness, and moisture content for industrial

applications. Based on stakeholder discussions and interagency conversations, PSI is assisting the EPA in a project to support the testing of new technologies that have the potential to reduce or eliminate the use of radioactive materials in traditional gauges.

The Product Stewardship Institute is involved in management of the following two products: Tritium Exit Signs – recycling and/or disposal Alternative Technologies for Industrial Radioactive Gauges.

## **Thermostats**

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A significant number of thermostats still on the wall contain mercury, which is a potent neurotoxin. Mercury is used as a component of a mechanical tilt switch in thermostats, consisting of a glass bulb filled with inert gas and approximately three grams of mercury. Since many thermostats contain more than one switch, the average thermostat contains four grams of mercury. Even though 15 states now have laws that ban or restrict the sale of mercury thermostats, mercury thermostats can still be legally sold in the remaining states. In 1994, there were approximately 63 million mercury thermostats in use within the residential sector alone, equal to about 277 tons of mercury. Improper waste handling and disposal of mercury thermostats can result in mercury releases, and only a small fraction of mercury thermostats are being collected despite an industry-funded program run by the Thermostat Recycling Corporation. There are three major factors for the poor recycling performance of thermostat manufacturers: lack of awareness of thermostat recycling programs, an inadequate number of convenient collection locations, and insufficient motivation. PSI is working with stakeholders to develop effective state thermostat recycling programs that meet aggressive performance goals, and to conduct a pilot project for the collection of thermostats (and fluorescent lamps) at retail outlets.

The Product Stewardship Institute is working with a multi-stakeholder group to implement product stewardship solutions for mercury switch thermostats. The goals of the PSI program are to educate heating and cooling contractors and homeowners about the need to responsibly manage mercury thermostats, expand the availability of current recycling locations, provide incentives that motivate contractors and homeowners to recycle, and increase the replacement rate of mercury thermostats with non-mercury alternatives.

## **Tires**

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In 2001, there were approximately 280 million scrap tires generated across the United States. Several markets for scrap tires exist, such as tire-derived fuel, civil engineering applications, and crumb rubber applications. However, these markets are not sufficient to keep pace with the annual generation rate. Growing stockpiles of tires create environmental threats and serious health hazards when they are improperly maintained or catch fire. The negative environmental effects of scrap tires include becoming a habitat for disease-carrying pests; contamination of air, water, and soil; and impacts associated with wasting a valuable resource if disposed.

The Product Stewardship Institute was commissioned by the California Integrated Waste Management Board to engage key stakeholders involved in the manufacture, sale, regulation, use, recycling, and disposal of tires to find solutions that would ultimately result in the reduction of tire disposal in landfills. This project commenced in January

2004 with stakeholder interviews and research that led to a Tire Stewardship Action Plan, which outlined the problem, project goals, key issues, and potential solutions. The Action Plan formed the basis for a one-day stakeholder meeting in July 2004. At the meeting, participants explored opportunities for reducing impacts from tires along the entire product life cycle, including “front-end” solutions (e.g., the use of tires with longer operational life) and those at a product’s “end of life” (e.g., developing new or expanding existing end-use applications).