

# Best Practices SUSTAINABILITY

## Innovative Advances in Sustainability: STANDARD IMAGING


### BACKGROUND

Ed Neumueller, President & CEO of Standard Imaging (SI) says that sustainability for his company starts with personal commitment and interest. Since its founding, the company has continually strived to be a good corporate and environmental citizen. Building upon its past, and its founders' beliefs, SI has merged many of its development, manufacturing, workplace safety, facility and quality activities with its environmental concerns and goals. This resulted in the company implementing a comprehensive Environmental Management System (EMS) formally launched, with governing operating procedures, goals and metrics in 2008.

### FACILITY

In early 2007, Standard Imaging completed a new 27,000 sf state-of-the-art facility in Middleton, Wisconsin, designed and built using LEED principles. Among the unique features of the building are geothermal heating and cooling, solar panel generated electricity, energy efficient air recovery ventilation, passive solar heating, energy efficient lighting and day lighting, low flush toilets, production area sky lights and foam-in-place insulation in the office ceilings. To support product development and testing, the building contains a patient treatment irradiator system and an advanced environmental chamber.

The new SI facility is located with transportation options in mind. It is located on a city area bus route, as well as on bicycle and pedestrian trails. Additionally, the landscaping incorporates water runoff retention ponds and water gardens. From the beginning, environmental objectives for the facility and the operations were paramount. With the new facility, SI believes that it has eclipsed initial objectives,



<b>Location:</b>	Middleton, Wisconsin
<b>Industry:</b>	Medical Equipment
<b>Size:</b>	48 employees
<b>Contact:</b>	Ed Neumueller, President & CEO

while at the same time improving its operational efficiencies. This has resulted in double digit sales increases and increased gross margins, when compared to 2006 operations at the old facility.

### CUSTOMER ENERGY USE REDUCTION EFFORTS

SI products are quite frugal with regard to energy consumption. Those that are powered typically operate from a standard 120 v transformer drawing a total of only about 1.2 amps. The real energy savings come from the reduced radiation treatment system set-up and run times for patient treatment planning and required periodic quality assurance tests. Since most radiation treatment systems incorporate a linear accelerator, they are enormous consumers of electrical power. Thus, any reduction in run times directly corresponds to energy savings, as well as greater throughput which allows for the treatment of more patients.



*"Within the mission of Standard Imaging is a key value that states that we will support our community and strive to be good stewards of our environment. We take this value seriously when we make our business decisions and try to lead by example."*

Ed Neumueller  
President & CEO, Standard Imaging

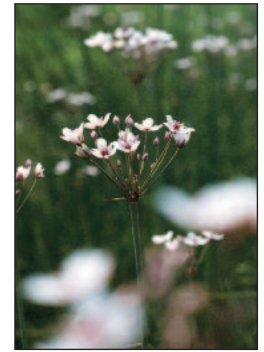
Currently, SI is certified to the international quality management system standards of ISO, the EI CE medical device directive all of which are in the process of being better linked to ISO 14001, the voluntary international environmental management system EMS standard.

## ***ENVIRONMENTAL CITIZENSHIP***

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SI strives to be a green company and citizen. SI complies with the European Union WEEE Waste Electrical and Electronic Equipment directive regarding the recycling/reuse, and disposal of electrical and electronic equipment and is nearly complete in complying with the EU Restriction of hazardous substances directive addressing the design of electrical and electronic equipment. A good example of their efforts is the design of new PC boards which minimize the use of toxic materials. Packaging design also focuses on reusable materials meeting European Union

standards versus Styrofoam and other environmentally unfriendly materials. In support of these standards and directives, the products user Manual, which is available in print or on a CD, contains instruction for customers on how to return the product to SI to ensure the proper recycling and/or disposal after their useful lives.



## ***LOCAL TIES***

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SI uses local suppliers where possible. Nearly 70 percent of their key strategic suppliers are based in Wisconsin with 35 percent in Dane county. This is important to the company because suppliers are convenient for service and support and vested in the success of the products. These local relationships also significantly reduce travel costs, energy consumptions, green house gases and shipping times.

## ***PAPER REDUCTION EFFORTS***

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Reducing the use of paper was one of the first targets of the EMS. Paper not only clogs landfills, it uses enormous amounts of energy and water to produce. Thus any reduction in this visible area translates directly to a broader environmental impact. SI initially focused on the implementation of a paperless enterprise resource planning system to manage the customer order, production and accounting portions of its business. In 2005, the company launched the Intuitive ERP system, which dramatically reduced the amount of printer paper used. Following on this successful implementation, focus was shifted to reducing copy paper usage.

2006 brought the implementation of electronic operating procedures and work instructions. Building on past success, in mid-2009, the calibration reports required for many SI products from the UW, Accredited Dosimetry Calibration Laboratory were transferred to an electronic format for storage. These efforts have resulted in significantly reducing printer and copy paper purchases compared to prior years.

## ***RECYCLING EFFORTS***

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The company recycles materials and waste, where possible. For more than 10 years, SI has recycled aluminum cans, plastic products, paper, cardboard, newspapers and scrap metals from its prototype shop in cooperation with its contracted waste removal company. SI also regularly reuses cardboard boxes and packaging materials to reduce waste.

The company allows employees to purchase used electronic and office products, such as computers, printers, tools and furniture at significant savings, thus keeping these products

## **What does SUSTAINABILITY mean to businesses?**

The most commonly used definition of Sustainability incorporates the precept of ***“meeting the needs of the present without compromising the ability of future generations to meet their own needs.”*** Now this is a pretty far reaching statement and is not particularly helpful to businesses driven by production goals, quality improvement, increased efficiency and cost cutting. As we talk to those business leaders already engaged in sustainability efforts, the terms they tell us include:

- (1) consider the entire life cycle of the product and of physical assets;
- (2) consider the effect on the community infrastructure;
- (3) environmental solutions must have a business purpose and bring value to the business;
- (4) you must have passion for it and enable staff to be innovative.

We've found that sustainability is a very broad subject incorporating product design, procurement, production, packaging, logistics, facilities design and operation, safety, health, leadership, employee involvement and community support. We've also learned that while companies exhibiting best practices may not hit every one of those marks, they get pretty close. So choose a definition that best suits your business, but know that the companies we've talked with are successful partly because of their passion for sustainability, not in spite of it.

from the landfill those products that are not sold are then provided to local charitable organizations or to a commercial recycler.

## ***ENERGY STAR REPLACEMENTS***

As SI replaces older electronic equipment, it places great importance on obtaining Energy Star EPA Pollution Preventer certified products.

## ***ENVIRONMENTAL METRICS***

SI holds management team meetings every 60 days, where environmental, quality and business performance metrics are reviewed and evaluated. The environmental, quality and business performance metrics directly link to related company plans, which then link to company objectives and ultimately to the quality policy statement. EMS metrics currently address the following environmental related operations and activities: plasticizer reduction, radiation exposure, solar energy generation, paper reduction, geothermal HVAC savings and maintenance costs, use of local suppliers, and management team activities.

## ***GEOHERMAL HEATING AND COOLING (SEE SIDEBAR)***

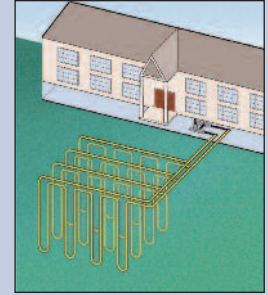
When SI built the new facility, incorporating a geothermal heating and cooling system was a prerequisite. Utilizing this type of system removed the necessity of having a natural gas based primary heating system, which greatly reduced the carbon dioxide potential generated through the burning of fossil fuel. Focusing on the unique geothermal system, which is one of the largest in the state for a manufacturer, the company expected a \$10,000 savings when compared to conventional heating and cooling systems, resulting in an anticipated system payback of 12 years. Due to higher energy costs, the payback has now been decreased to 6-7 years. The system incorporates 54 pipes placed under the parking lot, providing greater utility of this paved area. Each pipe hole is drilled to the depth of 150 feet through which an eco-friendly coolant is circulated to 15 heat exchanging pumps throughout the facility. Overall system complexity is greatly reduced in comparison to traditional heating units and air conditioners.

## ***SOLAR ENERGY PROJECT***

In 2008, SI began a previously planned project to supplement its electrical energy needs with solar power. The company elected to pursue a dual axis solar tracking system that would generate approximately 13,973 kilowatt hours per year or about 10-15 percent of its current electrical energy needs. This will result in significant energy savings each year calculated at today's rates, which will only rise in the future. The total cost of the system was slightly more than \$100,000.

## ***GEOHERMAL HEATING AND COOLING***

Geothermal heating and cooling uses the relatively constant temperature of the earth to heat and cool homes and businesses with 40 percent to 70 percent less energy than conventional systems. While conventional furnaces and boilers burn a fuel to generate heat, geothermal heat pumps use electricity to simply move heat from the earth into buildings, allowing much higher efficiencies. The most efficient fuel-burning heater can reach efficiencies of around 95 percent, but a geothermal heat pump can move up to 4 units of heat for every unit of electricity needed to power the system, resulting in a practical equivalence of over 400 percent efficiency.

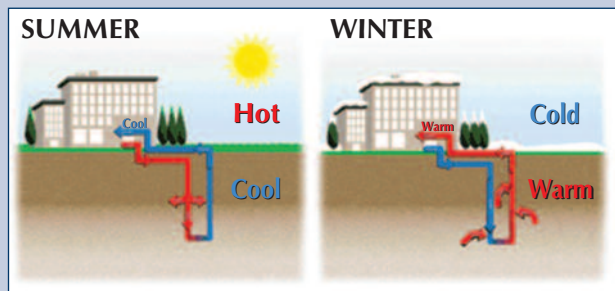


### ***Geothermal Heating and Cooling Makes Sense***

Geothermal systems are efficient, environmentally-sensitive, comfortable, and economical. Operating savings often provide paybacks of considerably less than five years -- sometimes less than two years. In addition, electric utilities are so convinced of the value of this technology for their customers that they offer design assistance, referrals, or financial incentives to defray the first cost increment of geothermal systems. The key is that geothermal heat pumps use electricity to move heat, not to generate it by the burning of fuel or using electric resistance elements. Indeed, the U.S. EPA has found no other technology with more favorable operating efficiencies and economics than emerging geothermal heat and cooling systems.

### ***An Important Renewable Energy Technology***

The U.S. Environmental Protection Agency has concluded that well-designed and properly installed high efficiency geothermal heat pump systems produce less environmental harm than any other alternative space conditioning technology currently available. On a full fuel cycle basis, emerging geothermal systems are the most efficient technology available, with the lowest CO<sub>2</sub> emissions for minimum greenhouse warming impact. Overall, the EPA found emerging geothermal heating and cooling systems to have the lowest environmental cost of all technologies analyzed -- including air-source heat pumps and natural gas furnaces.



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All the electricity generated by the solar panels is sold to MG&E at a favorable rate and credited back to SI.

Based on information provided by Madison Gas and Electric this project will yield an impressive amount of environmental savings, including more than 10,000

pounds of coal saved per year and more than 32,000 pounds of carbon dioxide saved per year.

### WIND ENERGY

The company is continuing to seek new ways to reduce their energy usages. They are now developing a plan to install wind generators on the site, very possibly a roof top or ducted wind turbine. Company officials are calculating the cost of installation and potential payback.

### CORPORATE INVOLVEMENT

SI always strives to be a community-focused firm and encourages activism in related socially responsible endeavors. SI provides donations to many charities supportive of environmental causes and change. The company is very proud of its environmental stewardship and hosts tours by local schools to showcase their state of the art building design.

### CERTIFICATIONS AND AWARDS

#### Green Tier I

In 2009, SI became Green Tier I<sup>1</sup> certified by the Wisconsin DNR, the first medical device manufacturer in the state to obtain this prestigious certification. The Green Tier program provides an opportunity for Wisconsin to combine and achieve economic and environmental goals. It provides incentives to businesses and communities to move beyond environmental compliance to address unregulated problems, restore natural resources, and encourage voluntary environmental performance that exceeds minimum standards. Quarterly metrics reports are submitted to Green Tier to confirm compliance.

#### Awards

Standard Imaging is the recipient of the 2009 Manufacturer of the Year Sustainability (MOTY) Award in the small business category.

Standard Imaging was named the "Sustainable Small Business of the Year" in the inaugural 2010 Business Sustainability Awards sponsored by *In Business* magazine.

Standard Imaging, Inc. is one of seventy-five businesses in the U.S. to win the prestigious U.S. Chamber Blue Ribbon Small Business Award in 2010.

### MORE INFORMATION

For more information on WMC's Sustainability efforts, contact Mike Shoys, [mshoys@wmc.org](mailto:mshoys@wmc.org), (608) 258-3400.

### REFERENCES

#### <sup>1</sup>Green Tier I

Wisconsin Dept. of Natural Resources (DNR)  
101 S Webster Street, PO Box 7921,  
Madison, WI USA 53707-7921  
Mark McDermid, (608) 267-3125  
<http://dnr.wi.gov/org/caer/cea/environmental/index.htm>

#### WMEP

2601 Crossroads Drive, Suite 145  
Madison, WI 53718  
Phone: (877) 800-2085  
<http://www.wmep.org/>

#### Focus on Energy

431 Charmany Drive  
Madison, WI 53719-1234  
Phone: (800) 762-7077  
Email: [Focusinfo@focusonenergy.com](mailto:Focusinfo@focusonenergy.com)  
<http://www.wifocusonenergy.com/>

#### Wisconsin Sustainability Network

Dr. Raj Veeramani  
Professor, College of Engineering & Wisconsin  
School of Business  
University of Wisconsin-Madison  
Email: [info@wsnportal.org](mailto:info@wsnportal.org)  
Phone: (608) 262-0861  
<http://wsnportal.org/>

#### NACFAM Sustainable Manufacturing HUB

Sustainable Manufacturing Hub, The National  
Council for Advanced Manufacturing  
Washington, DC  
Phone: (202) 367-1178  
<http://www.nacfam.org/PolicyInitiatives/SustainableManufacturing/SustainableManufacturingCouncilMemberBenefits/tabid/79/Default.aspx> or  
<http://nacfam01.stage.web.sba.com/Default.aspx>

#### UW Madison Environmental Resource Center

445 Henry Mall, Room 202,  
Madison, WI 53706  
Phone: (608) 262-0020; Fax: (608) 262-2031  
<http://www.uwex.edu/erc/>

#### US Chamber of Commerce Business Civic Leadership Center - LEED

U.S. Green Building Council  
2101 L Street, NW, Suite 500  
Washington, DC 20037  
<http://www.usgbc.org/>

#### USEPA Smartway

SmartWay  
2000 Traverwood  
Ann Arbor, MI 48105  
SmartWay Call Center (734) 214-4767  
Fax: (734) 214-4052  
Email: [Smartway\\_transport@epa.gov](mailto:Smartway_transport@epa.gov)  
<http://www.epa.gov/smartway/>

#### Global Reporting Initiative

GRI Corporate Sustainability Report - Global  
Reporting Initiative  
PO Box 10039, 1001 EA  
Amsterdam, The Netherlands  
Telephone: +31(0) 20 531 00 00  
Fax: +31(0) 20 531 00 31  
[www.globalreporting.org](http://www.globalreporting.org)