

TNEC

Health and Safety
Training

The New England Consortium's Quarterly

A Newsletter about Working with Toxic Materials, Health and Safety Training, Law and Public Policy

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TNEC Researches it's Training Programs

At the June 18th TNEC Advisory Board meeting, Dr. Cora Roelofs, Research Faculty in UML's Department of Work Environment, presented the findings of a pilot study of employers' and managers' perspectives, policies, and practices related to HAZWOPER health and safety training provided to their employees.

Dr. Craig Slatin, TNEC's Principal Investigator and Chair of the Department of Community Health and Sustainability at the University of Massachusetts Lowell (UML) has overseen the study's development and implementation in the hope that it, "...can support further research both with the network of employers and managers who purchase TNEC training and with other programs supported by the NIEHS Worker Education and Training Program." The expertise of Dr. Roelofs, and Dr. Beverly Volicer, a biostatistician and professor emerita in UML's Department of Community Health and Sustainability has been instrumental in moving this work forward.

The goal for this training evaluation research was to conduct research to better understand 1) health and safety management in the population of companies and agencies identified by TNEC, 2) managers' evaluation of TNEC training and, 3) what impact TNEC training might have had on the management of health and safety at the companies and agencies served by the training.

The survey was anonymous and a total of 22 managers responded (20% of those recruited). The majority of the twenty-two respondents worked for private sector environmental services firms. Most of these firms were small businesses although several had parent companies that help them with their health and safety programs. The public sector was represented as well.

Employee participation in their health and safety program (a TNEC training objective) was identified most commonly as being a factor that



Evergreen Solar

The New England Consortium (TNEC) recently worked with Evergreen Solar to provide their staff training in anticipation of the ongoing expansion of its business. Evergreen with its worldwide headquarters in Marlboro, MA, is a global innovation leader in developing, manufacturing and marketing photovoltaic (PV) modules, the engines of solar electric systems. The company is recognized as one of the brightest rising stars in the solar industry.

Over the past few months TNEC's provided training to Evergreen

at their Devens, MA expansion site and at TNEC's training center based at the University of Massachusetts Lowell. TNEC and Evergreen can work together helping each other promote a green economy that uses clean energy and protects workers from getting hurt, sick, or killed on the job. Established in 1994, Evergreen produces solar panels using the company's proprietary crystalline silicon technology, known as String Ribbon™. Evergreen's solar panels are used in commercial and residential applications in remote power and

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TNEC Researches it's Training Programs

supported strong H&S programs and helped managers to do their jobs more effectively. Interestingly, employee participation in health and safety programs was the most popularly cited positive impact of TNEC training. Respondents strongly believed that employees were more likely to engage in safe work practices and maintain their safety equipment following TNEC training. Nearly half the respondents to this set of questions reported that their company or agency's production or service quality had been positively impacted by their employees' participation in TNEC training. The respondents' most commonly cited reasons for

using TNEC training were: to be prepared for emergencies, to improve employee job performance, and to comply with of OSHA requirements.

TNEC training was highly rated. Where a firm had discontinued using TNEC services, the reasons were related to the company and agency's ability to conduct training themselves, travel distance, and cost. The majority of respondents rated TNEC training quality as "exceeding expectations." One manager reported that the firm used TNEC for OSHA 40, OSHA 8, Work Zone Safety, and 24 Hour Emergency Response training stating that, "In every class TNEC

has sought our input and tailored content and examples to our business and needs. Interactive classes have been well received, even by our more 'difficult' employees."

This survey of health and safety managers provided strong feedback about managers' perception of the quality and the impact of TNEC's training. Paul Morse TNEC Project Director commented, "We believe that the survey is a strong instrument and could be adapted and utilized by other H&S training programs to generate more data. The data can contribute to our understanding of the impact of worker training on health and safety programs and worker safety."

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Evergreen Solar

electric grid-connected markets around the globe. Unlike several multinational conglomerates that may operate a solar subsidiary, solar is Evergreens sole focus.

Evergreen's cutting-edge technology began with a new concept called String Ribbon™ Technology, an idea based on the natural science of surface tension. Think of the way a child blows a soap bubble. The surface tension between the soapy solution and the wand creates a bubble.

This is similar to the way Evergreen Solar makes silicon wafers. The main difference is instead of using a ring-shaped wand, Evergreen uses two parallel wires called strings. When pulled through a silicon melt, the molten silicon spans and solidifies between the strings, creating a long ribbon that is harvested periodically for further processing into solar cells.

The two wires unwind from spools, run through the molten silicon and pull a thin ribbon of silicon out of the melt. The process is continuous, silent and clean.

According to Evergreens' website, Evergreen is the most environmentally conscious company in the solar industry today. Silicon is the basis of the cells used in the vast majority of solar panels. Conventional technologies are based on energy-intensive casting along with machining and wire cutting of large silicon blocks, resulting in substantial silicon waste.

Evergreen's String Ribbon™ Technology fabricates thin solar wafers from molten silicon, with virtually no cutting and minimal waste. Their high-quality cells use 50% less silicon per watt than the rest of the solar industry. This

technology also results in an ultra-small carbon footprint and an energy payback as quick as 15 months. Panels produced from Evergreen's new Quad furnace technology further reduce their carbon foot print, which is already the smallest in the industry. Its process is simple, efficient and clean, helping us maintain our firm commitment to environmental excellence.

For further information about Evergreen visit their website at www.evergreensolar.com.



News from the COSH's

Green During the Construction Phase

The Rhode Island Committee on Occupational Safety and Health (RICOSH) along with American Lung Association of Rhode Island are working towards integrating key air pollution issues into the Green building movement.

So far the green building movement focuses on using less toxic products from the perspective of future occupants of a building. This proposal aims to include air quality issues while structures are being built, **the construction phase**.

Jim Celenza, director of RICOSH believes, "this is an opportunity to directly address the health and environmental impact of construction stationary equipment and motor vehicles on worker health and community health as well to address the significant health impacts of dust, especially crystalline silica." Existing green building approaches such as Green Global and LEED certification programs are gaining wide acceptance among builders, designers, developers and the architectural communities.

According to RICOSH there are three pillars that would define a green approach during construction:

- Restrict idling of *gasoline* and *diesel* vehicles.
- Implement dust suppression controls, especially silica control measures during construction. Methods include water spray dust control measures, sweeping compounds to reduce dust exposures when rooms under construction are being swept and include retaining a landscaping policy that minimizes destruction to standing foliage to reduce both general dust exposures and limit water runoff.
- Utilize equipment (stationary and mobile fleets) that reduces exhaust products via engine modifications, alternative fuels, electric and or hybrid systems and use of diesel oxidation catalysts and diesel particulate filters.

This triangular approach would benefit the surrounding community, onsite workers and visitors to the site by reducing both particulates and gases and by reducing gasoline powered vehicles and equipment would aid in the reduction of greenhouse gas emissions.

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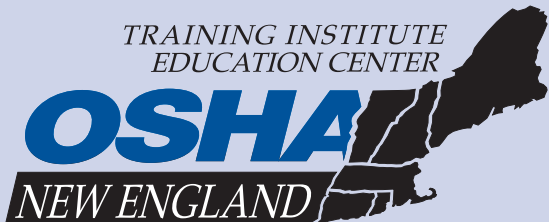
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TNEC Leads Workshops on European Environmental Regulations for New Hampshire and Maine Companies and Agencies

What is my company already doing to move toward more sustainable, green production? How can my company conform to European environmental regulations—in particular, REACH, WEEE, and RoHS—so that we can sell our product in Europe? These were questions posed to participants in two workshops The New England Consortium (TNEC) recently helped run that addressed the impact of European chemical regulations on U.S. companies exporting to European Union member countries. Both workshops were held at the International Trade Resource Center in Portsmouth, New Hampshire. The workshops were a collaboration of TNEC, the University of New Hampshire Small Business Development Center, the Toxics Use Reduction Institute (at UMass Lowell), and the International Trade Resource Center. While these workshops might seem a departure from TNEC's traditional focus on hazardous materials and worker health and safety, they are indeed a further extension of TNEC's training capacity on issues of sustainable production and pollu-

tion prevention, which TNEC began developing in 2000.

On March 11, TNEC educators Tom Estabrook and Bridget McGuinness delivered the first workshop, on the impact of REACH (Registration, Evaluation, and Authorization of Chemicals) regulation. The REACH workshop asked the 22 participants what their companies were doing to institute pollution prevention and sustainable production and to address the evolution of REACH, which went into effect in 2007. A question and answer session followed where participants raised concerns about difficulties in exporting products containing substances that will or might be phased out within the European Union, and other related issues.

On June 26, TNEC's Tom Estabrook assisted Pam Eliason, policy analyst at the Toxics Use Reduction Institute (UMass Lowell) in presenting a workshop to 20 participants: "As the World Turns: How to Stay on Your Feet Amidst Changing Global Environmental Policies." The workshop addressed the challenges of adapting to recent and new global

environmental policies, in particular the European directives WEEE (Waste Electrical and Electronic Equipment), RoHS (Restriction on Hazardous Substances) and REACH.

Participants at both workshops were from New Hampshire and Maine, representing companies exporting to Europe, several state agencies and a law firm. Companies present were in the following sectors: electronics packaging, electronic wiring, electronics labels, electronic component preparation, industrial diaphragms, leather tanning chemicals, commercial wallcoverings, biotechnology, tension technology devices, instrument calibration devices, magnetic fluids and sealants, and industrial/commercial fasteners. Both workshops were very well received and generated much interest and discussion about chemicals policy and what companies can do now to move more quickly toward sustainable production in a changing global regulatory environment.

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