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DPPEA FOCUS
WASTE MINIMIZATION

Environmental Management Systems

Partnering to continually improve North Carolina's environment

Since development of the ISO 14000 Environmental Management series, many North Carolina facilities have expressed interest in pursuing ISO 14001 certification, which involves establishing an environmental management system (EMS) using the ISO model. The ISO 14000 series was developed by the International Organization for Standardization to support the concept of "sustainable business development." The family of ISO 14000, in addition to 14001 on EMS, includes guidelines for environmental auditing, environmental labeling, environmental performance evaluation, and life-cycle assessment. All ISO standards are voluntary, designed to assist in establishing worldwide consistency in these areas.

The North Carolina Department of Environment and Natural Resources (DENR), with the Division of Pollution Prevention and Environmental Assistance (DPPEA) as the lead agency, is closely evaluating the effectiveness of an EMS in improving environmental performance and compliance as well as pollution prevention. This evaluation is being performed through an internal DENR EMS working group that has partnered with six companies and one federal facility. Through this pilot project, supported by a grant from the United States Environmental Protection Agency's Office of Water, DENR hopes to better understand the implementation of an EMS, particularly the ISO 14001 model. DENR's pilot program is being supported by a grant from the United States Environmental Protection Agency's Office of Water.

In addition, DENR's interest in the pilot program is to:

- Determine if EMS implementation results in improved environmental performance.
- Participate in public policy discussions.
- Encourage pollution prevention.
- Investigate leveraging of DENR resources.
- Encourage "beyond compliance."
- Develop partnerships between environmental groups, industry, trade associations, and academia.

Multi-State Working Group

To further its efforts and share experiences, North Carolina is a founding member and serves on the coordinating committee of the Multi-State Working Group (MSWG). MSWG is a voluntary group of participants from state, federal, non-governmental, business, and higher education organizations interested in the effectiveness of EMS. The purpose of MSWG is to research the ability of environmental management systems to improve the state of the

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Happy Holidays!

INSIDE this issue

Six companies participate in Environmental Managment Systems Pilot Project Program

North Carolina is fortunate to have six companies and one federal facility as participants in the EMS Pilot Project Program. These participants are Lufkin/Cooper Tools, Apex; Honda Power Equipment, Swepsonville; Konica, Whitsett; Exide Electronics, Raleigh; Marine Corps Base Camp Lejeune, Jacksonville; Duke Power Company, Salisbury; and Novo Nordisk Biochem North America, Franklinton. Motorola in Research Triangle Park (RTP) was an original pilot member but no longer plans to certify because of a corporate relocation of the RTP manufacturing facility to Texas.

Duke Power and Novo Nordisk are the program's latest pilots. Duke Power Company plans to implement a corporate designed environmental, health, and safety management system containing elements of ISO 14001. Novo Nordisk's team approach to ISO 14001 EMS design and implementation encourages employee participation. Two committees, a six-member steering committee, and a 16-member working committee are developing the EMS for Novo Nordisk.

To support the pilot projects, DPPEA has dedicated staff and other resources to assist in EMS design and implementation. Each pilot has at least one DPPEA staff member working with participants on a continual basis until completion of EMS implementation or eventual certification. All DPPEA pilot project staff have completed training by certified course providers in ISO 14001 EMS.

Each pilot participant has agreed to provide data on its environmental performance, compliance, pollution prevention, environmental conditions, costs/benefits of EMS implementation, and stakeholder involvement/ confidence. These are key areas identified by MSWG for data collection. Baseline data currently are being collected from North Carolina pilots as well as about 80 other organizations nationwide. Data are being compiled into a national database, maintained by the University of North Carolina at Chapel Hill.

To facilitate information sharing on system design, certification audits, training, and other topics of interest, DPPEA conducts routine industry roundtable meetings with the pilots and various interested parties. Speakers at previous meetings have been representatives from auditing firms, ISO 14001 certified manufacturing facilities, and regulatory personnel. Topics of discussion include what to expect during a certification audit, advice from manufacturers already certified, and regulatory flexibility for certified facilities. Meetings provide participants with an open forum to discuss concerns, experiences, and program updates.

Facilities considering an EMS or pursing ISO 14001 certification usually have many questions and concerns. Each pilot facility has experienced various benefits and barriers in establishing an EMS. Some of the most common questions are discussed below.

Why become ISO 14001 certified?

Lufkin/Cooper Tools believes that certifying its environmental management system to ISO 14001 will allow the facility to comprehensively manage all its environmental issues while involving managers in identifying areas of environmental impact and setting goals for minimization of those impacts. Continual improvement also plays a major role in Cooper's decision to become certified. Routine evaluation and enhancement of the EMS will result in greater control and oversight of the organization's activities, thus reducing liability. Improved communication with employees concerning the facility's environmental requirements also is recognized as a major benefit of certification.

How do we determine what is significant?

All organizations must identify activities, products, or services that may have an impact on the environment. Five divisions at Camp Lejeune identified 40 processes with more than 400 environmental aspects (i.e., causes) and impacts (i.e., effects). In conducting the significance scoring of the aspects, Camp Lejeune realized the flexibility of ISO 14001 by developing and using three different significant scoring criteria. For all divisions, the scoring criteria include degree of impact from the environmental aspects, frequency of impact, and potential for regulatory or legal exposure. Additionally, two divisions added public health or community input. Significant scoring for the pilot facilities varies to

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reflect individual business environments while meeting ISO 14001 requirements.

What are the costs for implementation?

Costs for developing and implementing an ISO 14001 or a similar EMS may vary according to facility size, quantity of processes or areas to be certified, number of environmental aspects, resources available, and existing certification to ISO 9001/9002.

For the pilot organizations (approximately 300 employees), certification fees range between $10,000-$15,000 for preliminary assessment, and for a three-year contract that includes additional periodic assessments.

Konica estimates the cost of implementation of ISO 14001 to be $21,000, which included staff time and ISO 14001 training. Konica estimates costs would have been higher if they were not ISO 9002 certified.

The financial payback of an EMS can be immediate. Since EMS implementation, Konica reports annual savings of $300,000 from a solvent recovery program, $30,000/year cost avoidance in solid waste recycling, and $5,000 cost reduction in energy use. The establishment of the EMS also has resulted in employee awareness and involvement in reducing environmental impacts while working to continually improve operations at the Whitsett facility.

What about barriers?

Although the payback of EMS can be short, the initial start-up costs may be a barrier for some facilities. While evaluating the usefulness of an EMS, companies must include the cost benefits of systems implementation. These benefits include identification of cost-savings, pollution prevention projects, reductions in potential liabilities, and lower insurance premiums.

Another barrier is working to provide adequate resources to complete the EMS plan while dealing with corporate changes. Exide Electronics was purchased in a corporate merger that created staff changes and reduced the amount of time available to spend on the project. However, the corporation is dedicated to completion of the EMS project and has shifted its certification schedule. It realizes the long-term benefits of certification and is committed to its fulfillment.

Is ISO 9001/9002 certification beneficial?

Most of the pilots are ISO 9001/9002 certified for manufacturing processes. Having a Quality Management System (QMS) has allowed for some existing 9001/9002 procedures to be modified to meet the ISO 14001 requirements. For example, the conditions for recordkeeping and document control procedures are similar between both standards. Honda Power Equipment said that program implementation will be easier due to its ISO 9002 certification. Honda has established a dual auditing program with its 9002 auditor and has provided ISO 14001 integration training to employees who work on QMS. Now, ISO 9002 and 14001 audits will be performed by the same auditor on the same schedule.

How do we ensure suppliers/vendors/contractors are involved?

An important area of concern for any organization considering certifying to ISO 14001 or establishing an EMS is vendor/supplier responsibility. Many companies with strong commitments to environmental performance are now passing this responsibility to their vendors and suppliers. This approach is driving businesses of all sizes to be better environmental stewards. By dealing with companies that are aware of customers' environmental needs and requirements, organizations pursuing ISO 14001 certification potentially can further reduce environmental impacts. For example, Honda is requiring its key suppliers to be ISO 14001 certified by 2001.

To date, these North Carolina companies have received ISO 14001 certification: ASMO North Carolina Inc., Statesville facility; Matsushita Compressor Corp. of America, Mooresville; New Breed Leasing Company, Greensboro; Allergan, Lenoir; Lockheed Martin Electronics & Missiles, Fayetteville; IBM, Research Triangle Park; International Paper – Forest Resources Division, Eastern Region, NC/SC/GA; and Konica, Whitsett.

DPPEA maintains a Web page with information on the ISO 14001 pilot project and other EMS related topics. This site http://www.p2pays.org/iso/index.htm also has copies of articles on ISO 14000 that were published in the spring and fall 1996 issues of *FOCUS*.

Waste Reduction Highlights

Drinkard Metalox, Inc. (DMI) - Charlotte, N.C.

The modern steel industry uses electric arc furnace (EAF) technology to manufacture steel. A major drawback of this technology is the production of hazardous EAF dust, which results in about 0.65 million tons of disposal annually in the United States and Canada.

Drinkard Metalox, Inc. (DMI), a research and development company, has developed a unique technology to completely process EAF dust into saleable products using a hydrometallurgical process. The technology is based on the digestion of EAF dust followed by a series of steps to isolate and retrieve the individual components. Energy is saved by eliminating the need for furnace treatment, whereas the competing Waelz kiln process requires two furnace treatment steps to adequately separate EAF dust. It also reduces waste by making saleable chemicals from the materials that otherwise would require landfilling or would result in low value using the Walez kiln process. Unlike the Waelz kiln process, DMI's process will be installed on-site at the steel mills, eliminating the expense and risk of storing and transporting hazardous waste.

DMI has completed pilot plant demonstrations of the system and is negotiating a contract with a major steel company to install a full-scale unit. Partial funding for the development of this technology came from the Department of Energy's National Industrial Competitiveness through Energy, Environment, and Economics (NICE3) grant program. For more information about the grant program, contact John Burke at (336) 249-1480.

Kentec - Kinston, N.C.

Kentec, a polymer filter cleaning facility, is a contract facility to the DuPont Kinston Plant. Major items cleaned at the facility include packs, powdered metal, and spinerettes, all of which are used in the production and spinning of Dâcron polyester fibers. The cleaning process consists of dipping parts in triethylene glycol (TEG) to remove accumulated polyester and byproducts. Spent TEG is recovered and transported offsite for recycling. Then, parts are rinsed with water to remove residual TEG and polyester ingredients.

This rinsewater represents the primary wastewater stream at the facility, totaling nearly two million gallons annually. Rinsewater constituents typically include TEG, 1,4-dioxane (a byproduct of heating TEG), and polyester byproducts (e.g. methanol). Until recently, all wastewater was shipped by rail to the DuPont Chambers Works facility in New Jersey for processing.

In 1996, Mobile Process Technology of Memphis, Tenn., was contracted to design and fabricate a reprocessing unit capable of separating emulsified oils, TEG, and other dissolved solids from the wastewater and for generating a water stream of sufficient purity for return to the cleaning process. Upon installation, the treatment unit demonstrated efficient separation of the wastewater stream, recycling more than 90 percent. The modular facility includes a spiral, round, crossflow membrane ultrafiltration system and reverse osmosis. This system concentrates wastewater constituents by an order of magnitude, whereupon they are piped to a nearby railcar. Although these liquids continue to be shipped by rail to the DuPont Chambers Works facility, total liquids shipped off-site have been reduced by more than 50 percent.

In 1997, 1.7 million gallons of wastewater were recycled. Originally, this would have cost Kentec more than $550,000 in treatment and discharge fees. However, shipments were cut in half, and a net savings of $71,000 were returned to the business after figuring operation costs for the separation unit.

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environment and the economy as well as evaluate their utility in public and private policy.

North Carolina sponsored the first national Pilot Project Implementation Workshop this past May in Cary, N.C. The workshop featured North Carolina pilot facilities that shared their experiences with implementation of the standard and participation in the program. Other state representatives with pilot programs also attended. Copies of speaker slides and workshop proceedings are located on DPPEA's web site at http://www.p2pays.org/iso/index.htm.

Nonpoint source grants available from state

The Division of Water Quality (DWQ) is administering a grant program for innovative nonpoint source (NPS) management strategies that will be used as demonstration projects. Nearly $1.2 million is available.

The program is under Section 319 of the 1987 Clean Water Act. Entities eligible to receive grant funds are state and local governments, interstate and intrastate agencies, and public and private nonprofit organizations and institutions.

Section 319 requires a non-federal match of 40 percent of the total project cost by the recipient, which can include non-federal staff resources, in-kind services, and indirect costs. Priority will be given to applicants that address these nonpoint source areas:

- Watershed(s) listed as impaired and on the state's 303(d) list.
- Proactive measures to preserve areas with high quality waters.
- Measurable outputs or expectations.
- Commitment to educational activities.

Applications are due by Feb. 26, 1999. For application assistance, call Linda Hargrove with the DWQ at (919) 733-5083. More information about the Section 319 grant program and how to apply is on DWQ's homepage at http://h2o.enr.state.nc.us/nps-hp.htm.

Division of Air Quality funds efforts to reduce air pollution from vehicles

A little goes a long way with an innovative state program that is helping to reduce air pollution from motor vehicles in North Carolina. Funded by a small portion of the state fuel tax, the program supports projects that can help limit smog-forming emissions from cars and trucks.

"We've got close to $1 million available for qualified projects in 1999," said Shelley Miller, program administrator of the North Carolina Division of Air Quality in Raleigh. The deadline for grant applications is December 31, 1998.

Starting its fifth year, the North Carolina Mobile Source Emissions Reduction Grants program has awarded 46 grants statewide, totaling nearly $2.7 million since 1995. Funds have ranged from a $8,600 grant to help the Jacksonville Police Department establish a bike patrol to a $232,075 grant to help the City of Belmont convert its motor fleet from gasoline to compressed natural gas.

Grants can be used for projects that directly reduce the levels of air pollutants generated by motor sources, such as the use of alternatively fueled vehicles. Mobile sources are any type of motor vehicle that can pollute the air. Such sources can include automobiles, trucks, buses, motorcycles and off-road vehicles such as construction equipment, motor boats and even lawnmowers. Grants also are awarded for projects that indirectly reduce mobile emissions, such as carpooling, mass transit and educational initiatives.

For more information about grant application procedures or previous grant winners, contact Shelley Miller at (919) 715-7220, or consult the Mobile Source Emissions Reduction web site at *http://daq.state.nc.us/Offices/Technical/Mobile/grants.html*.

FOCUS: Waste Minimization is published by the divisions of Pollution Prevention and Environmental Assistance, Waste Management, Air Quality, and Water Quality of the North Carolina Department of Environment and Natural Resources (DENR). It is intended to provide North Carolina industries and other interested parties with current information concerning proper waste management and waste reduction. The information contained in this publication is believed to be accurate and reliable. However, the application of this information is at the reader's own risk. Mention of products and services in the publication does not constitute an endorsement by the State of North Carolina. The information contained in this publication may be cited freely.

If you have comments, waste minimization case summaries, resource information, or questions for the next issue of the *FOCUS* newsletter, call Norma Murphy at (919) 715-6513, fax (919) 715-6794, e-mail *Norma_Murphy@p2pays.org*, or write the North Carolina Division of Pollution Prevention and Environmental Assistance (DPPEA), P.O. Box 29569, Raleigh, NC 27626-9569.

State of North Carolina: James B. Hunt, Jr., Governor, Wayne McDevitt, DENR Secretary; Gary Hunt, DPPEA Director.

Multimedia News Update

Air Quality News

New fine particulate monitoring network

Under a plan approved by the U.S. Environmental Protection Agency (EPA), the North Carolina Division of Air Quality (DAQ) recently installed a network of monitors to measure fine particulates, or dust. The monitors will measure compliance with the new federal standard for fine particulates that EPA adopted in September 1997. North Carolina now monitors three air quality standards for particulate matter:

- Fine particulates, or PM 2.5, the new federal standard that includes particles up to 2.5 micrometers in size.
- Coarse particulates, or PM 10, the existing federal standard that includes all particles up to 10 micrometers.
- Total suspended particulates, or TSP, a state standard that includes all particles up to 100 micrometers.

EPA adopted the new standard because of increasing concerns about the health effects of breathing fine particles, which can include solid particles and liquid droplets from fuel combustion, power plants, and diesel engines. Fine particulates are a health concern because they can reach the deepest recesses of the lungs. Scientific studies have linked fine particulates with serious health problems, including premature death; aggravated asthma; chronic bronchitis; respiratory-related hospital admissions, and emergency room visits. Elderly, children, and people with bronchitis, asthma, and other respiratory ailments are most at risk.

Fine particulates also are a major cause of haze that impairs visibility in many parts of the nation. These fine particles are so small that several thousand could fit on a dot the size of period. Although individual particles cannot be seen with the naked eye, collectively they can appear as black soot, dust clouds or gray hazes.

North Carolina does not have fine particulate monitoring data to show if the state would meet the new federal standard. EPA is allowing states five years to develop programs for monitoring and controlling fine particulates. Potential controls include filters and scrubbers for large stationary sources, cleaner fuels for motor vehicles, enhanced inspection and maintenance programs for cars and trucks, limits on open burning, and certification programs for wood-burning stoves.

For more information on DAQ's fine particulate monitoring, contact George Murray at (919) 733-1487.

Solid Waste News

Directory of Markets for Recyclable Materials ready for on-line use

DPPEA now has an on-line version of the *Directory of Markets for Recyclable Materials (DMRM)*, a database maintained by the Recycling Business Assistance Center (RBAC). It contains information on recycling companies serving North Carolina as well as information about materials accepted by a particular company, material specifications, and company contact information. For more information, call (919) 715-6500.

How to Use the Site

1. Go to http://www.p2pays.org/dmrm/
2. Before material selection, go to the Frequently Asked Questions page for helpful hints.
3. Begin search by selecting the major category for the material of interest. For example: **TEXTILES.**
4. Narrow the search by selecting more specific material. For example: **TEXTILE THREADS AND YARN WASTE.** The Web site generates a list of recycling companies that accept textile threads and yarn waste. The list also links to each company's profile and lists of materials accepted.
6. Select the recycler from the contact information.

Cool Features

The "Links Page." Links to:

- National recycling market development programs.
- Trade associations for specific recyclable commodities.
- Recyclable Commodity Exchanges.
- The "Electronic Submission Form" for new recycling companies to be listed on the site.

Water Quality News

Supplemental Environmental Projects (SEPSs) Policy adopted

The Division of Water Quality (DWQ) assesses civil penalties for violations of statutory and regulatory requirements. As required by General Statute 115C-457.1, funds received from these penalty collections were used for educational purposes. DWQ has a new enforcement policy where Supplemental Environmental Projects (SEPs) will be considered when appropriate for a portion of the settlement agreement between DWQ and the defendant.

SEPs are environmentally beneficial projects that a defendant agrees to perform as part of an enforcement action settlement. By incorporating SEPs into select enforcement cases, DWQ hopes that a more significant effect will be made on environmental protection. SEPs may result in less funds being received from enforcement settlements. However, they could provide a system to prevent the violation from reoccurring. SEPs can provide a defendant the opportunity to immediately improve environmental impacts as well as go beyond compliance. The final decision of whether or not to perform a SEP will be that of defendants.

Examples of SEPs include:

- Enhancement of downstream wetlands.
- Stream bank restoration projects.
- Establishment of source reduction/reuse/recycling and educational programs.

For further information about the SEPs policy, contact Susan Wilson at (919) 733-5083, extension 510.

Hazardous Waste News

Management of Contaminated Wipes

Wipes Intended for Reuse

The U.S. EPA has determined that reused contaminated wipes sent to industrial laundries are not subject to Resource Conservation and Recovery Act (RCRA) regulation. The North Carolina Hazardous Waste Section has adopted this policy because contaminants normally present are regulated under the Clean Water Act. Exemption from RCRA regulation also applies to reused wipes laundered by the generator where laundering waste is discharged to a POTW system subject to the Clean Water Act (CWA) or if there is an industrial wastewater point source discharge subject to CWA Section 402 (NPDES permit). Regulation would apply if laundering waste discharge is not regulated under CWA, such as a discharge into a septic system/leach field, or an unpermitted direct discharge.

Wipes Intended for Disposal

Wipes to be incinerated, fuel blended, or land-disposed must be managed as a hazardous waste. Wipes contaminated with a listed hazardous waste (i.e., F, K, P, or U waste code) must be managed as a listed hazardous waste when accumulated, treated, and/or disposed. Those contaminated with characteristic waste are hazardous only if the contaminated wipe is deemed a characteristic hazardous waste (ignitable, corrosive, reactive, or toxic). If the wipe contains or has been mixed with a listed hazardous waste, then the “mixture” rule of 40CFR261.3(a)(2)iii and iv applies, and the entire amount is hazardous waste.

Listed Waste Examples

Many cleaning operations use listed solvents (e.g., toluene, methylene chloride, and methyl ethyl ketone (MEK), and trichloroethane) with disposable wipes. Examples include cleaning printing rollers, touch-up painting operations, degreasing parts, and circuit board processing. Soiled wipes containing listed solvents should be managed and disposed as listed hazardous wastes.

Characteristic Waste Examples

Examples of characteristic contaminated wipes include towels that become contaminated with lead when used to remove solder from circuit boards or wipes soiled with paint characteristic for MEK. Paint contaminated wipes that have listed solvents as constituents of the paint are not listed wastes because of their ingredients. Paint waste consisting of toluene, MEK, or xylene is not a listed waste. The paint itself is not a solvent, but may be characteristic for ignitability or toxicity.

For more information, contact the Hazardous Waste Section at (919) 733-2178.

Calendar of Events

Conference/Workshop	Location	Date	Contact
North Carolina Environmental Education Conference	Research Triangle Park, N.C.	Feb. 10 - 12	Office of Environmental Education (800) 482-8724
ISO 14001 EMS Internal Auditor Course	New Orleans, La. Miami, Fla.	Nov. 19-20 Dec. 17-18	Excel Partnership, Inc. (800) 374-3818
ISO 14001 EMS Lead Auditor Course	Atlanta, Ga. Washington, D.C.	Dec. 16-20 Feb. 1-5	Quality Management International, Inc. (800) 971-4001
	Charlotte, N.C. Raleigh, N.C. Tampa, Fla.	Nov. 30 - Dec. 4 Jan. 18-22 Feb. 8-12	Environmental Resource Center (800) 537-2372, ext. 222
	Raleigh, N.C.	March 15-19	O'Brien & Gere (315) 437-6100

DPPEA wishes you a safe and happy holiday season.

The North Carolina Division of Pollution Prevention and Environmental Assistance is on the Internet.
Visit our homepage at http://www.p2pays.org

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