



P₂ NEWS

2nd Half 2001

P2 Awards Presented In All Categories – A P2 First!

On May 9, HRSD honored 138 local businesses for exemplary permit compliance and outstanding pollution prevention (P2) measures for 2000. This is HRSD's 4th annual recognition for P2 award winners and the 8th for

Of those businesses being honored, 7 received P2 awards, 95 received gold pretreatment excellence awards, and 43 received silver pretreatment excellence awards.

pretreatment excellence award winners. Honoring businesses for their outstanding efforts provides deserved recognition and an incentive to prevent pollution beyond environmental regulations.

Of those businesses being honored, 7 received P2 awards, 95 received gold pretreatment excellence awards, and 43 received silver pretreatment excellence awards. P2 awards are presented to businesses for outstanding multi-media (water, land, and air) efforts that focus on source reduction, rather than traditional treatment, control, and disposal. Some examples include raw material substitution, installa-

tion of clean manufacturing technologies, in-process recycling, as well as preventive maintenance and spill prevention. The P2 award winners are:

Significant Industrial User (total average discharge flow of >400,000 gpd):

U. S. Air Force, Langley Air Force Base, Hampton

Significant Industrial User (total average discharge flow of 50,000-400,000 gpd):

NOVA Chemicals (USA), Inc., Chesapeake

Significant Industrial User (total average discharge flow of <50,000 gpd):

Catalina Cylinders, Cliff Impact Division, Hampton

Nonsignificant Industrial User (total average discharge flow of >25,000 gpd):

NASA, Langley Research Center, Hampton

Nonsignificant Industrial User (total average discharge flow of 10,000-25,000 gpd):

Shorewood Packaging Corporation of Virginia, Newport News

Nonsignificant Industrial User (total average discharge flow of 1,000-9,999 gpd):

Naval Ophthalmic Support and Training Activity (NOSTRA), Naval Weapons Station, Yorktown

Nonsignificant Industrial User (total average discharge flow of <1,000 gpd):

Southern Atlantic Label Company, Inc., Chesapeake

"We are truly honored to receive HRSD's Pollution Prevention Award," beams Van White, Manager of Environmental Affairs, NOVA

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Innovative Approaches To Waste Minimization At Naval Station Norfolk Have Applications In Civilian Sector

By J. J. Hoyt and Doug Kirk,
Pollution Prevention Program
Managers, Commander, Navy
Region, Mid-Atlantic

The U. S. Navy has converted a former ammunition barge to a floating maintenance center known as the SPRUCE barge. The vessel services 11 submarines home ported in Hampton Roads.

The centralized maintenance allows the preservation of both topside and below deck spaces on board the submarines serviced. Since its inception 3 years ago, the Navy has saved over \$1 million in maintenance and preservation costs for the Submarine Fleet. The 110-foot barge is loaded with equipment and processes designed to reduce the use of hazardous

materials. A total of 13 separate processes have been modified and modernized to minimize waste and maximize productivity.

Most processes involve removing paint and profiling surfaces to repaint with the most up-to-date coatings available. Thermoset powder coatings are used extensively to reduce the use of liquid

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Environmental Scholarship Awarded For 2001

The Norfolk Foundation has selected Kathryn Zunich as the recipient of the HRSD Environmental Scholarship of \$2,000 for the fall of 2001. A graduate of First Colonial High School (Virginia Beach) in 1990, Ms. Zunich obtained a B. S. in environmental biology at the University of California at Davis in 1994 and anticipates receiving an M. S. in environmental engineering from Old Dominion University (ODU) in December this year. She is a resident of Virginia Beach.

Dr. Mujde Erten-Unal, a professor with ODU's Department of Civil and Environmental Engineering, recommended her. "Ms. Zunich is very motivated and a good student in environmental engineering. She has an inquisitive mind and is able to take initiative and conduct graduate-level research thoroughly," comments Dr. Erten-Unal.

Ms. Zunich has known since high school that she wanted to work in the environmental field. "I chose environmental engineer-

ing for its career opportunities and like the challenge and intellectual stimulation it provides. I particularly enjoy the diversity this career field offers," comments Ms. Zunich. She is currently employed by O'Brien & Gere Engineers Inc. as a staff scientist and hopes to continue working with the consulting firm after her master's program.

To qualify for the scholarship, applicants had to demonstrate financial need and permanently reside within HRSD's service area in southeast Virginia. Also, an applicant had to be a full-time graduate student in a public Virginia university in one of the following disciplines: environmental health, environmental chemistry, biology, or civil or environmental engineering. Employees and commissioners of HRSD and their relatives are not eligible.

The HRSD Environmental Scholarship Fund is being administered by The Norfolk Foundation, a community trust established in 1950 to make distributions from



▲ As a research assistant at ODU, Ms. Zunich analyzes samples of ship washdown waters for TBT (tributyltin). The samples are put through the pump system to determine the TBT removal and column loading rates. The pump system runs a pilot plant that was a scaled-down version of a treatment barge, a treatment facility placed on a barge and tugged from shipyard to shipyard.

charitable funds. The HRSD Environmental Scholarship Fund is a permanent, perpetual fund that will provide one scholarship each year. Scholarships are funded by administrative penalties levied against businesses and industries that fail to meet their permit requirements. Penalty monies are only used for P2 and environmental projects and programs that benefit the community.

Virginia Sponsors Mercury Collection And Thermometer Exchange At High Schools

By Ron Pinkoski, Pollution Prevention Specialist, Tidewater Regional Office, Virginia Department of Environmental Quality

The Virginia Department of Environmental Quality's (DEQ) Office of Pollution Prevention, in cooperation with the Department of Education, held a series of mercury collection and thermometer exchanges at 14 high schools across the Commonwealth from May 22 through June 8. This initiative was part of a new state-wide mercury reduction effort by DEQ to collect and dispose of mercury safely, educate the public about the dangers of mercury, and discourage the continued purchase and use of mercury-containing products.

"This is an important project because it promotes mercury safety at school and in the home," DEQ Director Dennis H. Treacy said. "Our goal with this pilot project is to provide useful information to the public on the safe use and disposal of items that contain mercury."

Mercury is found in dental fillings and thousands of everyday products from thermometers and fluorescent light bulbs to shoes and flooring. It is toxic and can cause significant damage to human health and the environment if not managed properly. Direct exposure to mercury affects the central nervous system and can impair how we hear, talk, see, walk, feel, and think. When mercury enters bodies of water, it is transformed to methylmercury, a highly toxic

and bioaccumulative form. One gram of mercury, about the volume of two thermometers, can contaminate all the fish in a 20-acre lake. Galinstan (a blend of gallium, indium, and tin), which is nontoxic and environmentally safe, is being

A total of about 310 pounds of mercury (including 1900 thermometers) was collected at 14 high schools and recycled.



▲ *The elemental mercury shown here was part of an experiment conducted in a Hampton High School laboratory. Oil (which appears on top) was added to show the high density of mercury.*

used as a substitute for mercury.

DEQ staff members, who received special training to ensure proper handling of the materials being collected, worked with representatives of each school. Local collection sites included Hampton High School and Gloucester High School. These schools were selected for the pilot project from

the approximately 40 schools that responded to a Department of Education survey. The schools and DEQ publicized the mercury collection and informed parents they could exchange mercury thermometers for digital thermometers at no cost.

Based on the turnout at the collection sites and the volume of mercury collected, the pilot project was a success. A total of about 310 pounds of mercury (including 1900 thermometers) was collected for recycling, including 43 pounds of elemental mercury and 7 thermometers at Arcadia High School, 87 pounds and 107 thermometers at Hampton High School, and 5 pounds and 87 thermometers at Gloucester High School. Participating schools benefited from the proper removal of potentially dangerous supplies of unused mercury and saved up to \$1,000 in avoided waste disposal and recycling costs.

The mercury reduction initiative is designed to reduce the potential for mercury contamination in the environment. This collection effort targeted items such as mercury-containing thermometers and mercury used in science labs and related activities. DEQ is encouraging pharmaceutical companies and other interested parties to co-sponsor similar events.

For more information about Virginia's mercury reduction initiative, please contact Jennifer Comfort with DEQ's Office of Pollution Prevention at jcomfort@deq.state.va.us or (804) 698-4235.

P2 News is published in August and February and highlights HRSD's pollution prevention activities and projects and other information useful to industries and businesses.

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P2 Awards *continued from page 1*

Chemicals. "For many years we have had a strong emphasis on recycling, waste minimization, risk reduction, and pollution prevention. People throughout our organization have taken this to heart and have done what they could, merely because it is the right thing to do. Upper management has been extremely cooperative by funding high-profile projects such as our award-winning vapor containment system. As I recounted our pollution prevention successes for HRSD's award application, the cumulative results were amazing. I am very thankful and proud to be a part of the NOVA Chemicals team."

Shorewood Packaging, another P2 award winner, "is committed to protecting the environment and is very proud to be selected for this award," according to Orville Calhoun, Regional Environmental, Health and Safety Manager. "This is truly a team effort. Employees in all departments have to perform their tasks correctly and efficiently to reach this level of excellence."

Gold awards are presented to businesses that have a perfect compli-

ance record, with no administrative or technical violations. Silver awards are presented to significant industrial users with three or fewer such violations and to nonsignificant industrial users with one such violation.

To protect the environment and our facilities, HRSD issues permits and monitors wastewater discharged from businesses and industries that pretreat their facilities' wastewater. The goal of this Pretreatment Program is environmental protection through the reduction of toxics and other pollutants entering the sanitary sewer system. The U. S. Environmental Protection Agency (EPA) recognizes HRSD's Pretreatment Program as one of the nation's best, using it as a model throughout the country.

▼ *Those accepting P2 awards are (from l to r) Karen Barta (Langley Air Force Base), Tim Gantley (Southern Atlantic Label), Orville Calhoun (Shorewood Packaging), Frank Ottofaro (Catalina Cylinders), Van White (NOVA Chemicals), Roger Hill and Lt. Carolyn Medina (NOSTRA), and Michelle Morris (NASA Langley).*



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Ask Enviro-Eddie

Dear Enviro-Eddie,

What is going on? I told my Pretreatment Inspector on several occasions about pollution prevention initiatives my company had implemented. Now I find out we weren't even considered for an HRSD P2 award. What gives?

Snubbed

Dear Snubbed,

Everyone likes to be recognized for his or her accomplishments, and I'm sure your inspector offered that recognition. However, the HRSD P2 award is based on a nomination package that the industry submits. The requirements and nomination forms are sent to all permitted industries in December each year. The completed packages are due back to HRSD around the 1st of March for judging. If you would like to see the requirements, I'll be glad to send you a copy. It's not too early to get started on the 2001 nomination package. Call me at (757) 833-1751 or e-mail me at the address below.

Dear Enviro-Eddie,

In our weekly meetings my boss keeps talking about EPCRA, TRI, and P2 and how they affect operation at our plant. I'm familiar with P2 but have no idea what the other acronyms stand for. Can you help me out?

Acronym-Challenged

Dear Acronym-Challenged,

I'd be glad to. The Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 directed the EPA (I hope you know what that is!) to collect information from manufacturers on the toxic substances they are releasing into the environment. The resulting Toxic Release Inventory (TRI) program requires certain industry sectors to report annually on the amount of toxic chemicals they release into the air, water, and land. This information is then compiled into a database that is made available to the public.

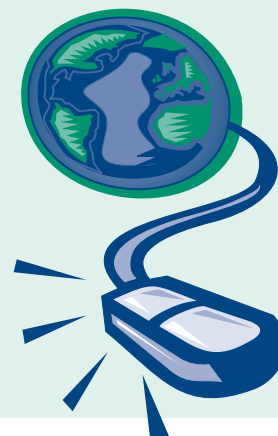
The impact of the TRI has been significant. The public has been empowered with information on chemical releases occurring in their communities and has used the information to pressure industry to clean up its act. Likewise, industry has a greater incentive to use P2 initiatives to minimize its toxic chemical releases and thus improve its image and credibility with consumers. With the passage of the 1990 Pollution Prevention Act, the TRI reporting requirements have been expanded to include reporting on recycling and progress on source reduction.

Need help with a solvent or chemical substitution problem? E-mail Enviro-Eddie at ehartman@hrsd.dst.va.us.

web world

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Innovative Approaches

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paint. Vacuum-sanding systems are employed topside over water to prevent contaminants from reaching waterways. Plural paint systems (which involve the blending of components just prior to application) use sealed paint pots to reduce air emissions. The distributed paint volumes are restricted to specific surfaces (i.e., if the application takes a quart, a quart is distributed). Disposable polyethylene paint container sleeves are inserted into distribution containers. The containers are reused, and the sleeve reduces solid waste by eliminating disposal of any unused paint in the container.

Unused or excess products are returned to the base supply center for use by other Navy facilities. Users can access a Web site to review the list of available chemicals. Products that formerly were hauled offsite for disposal are now available for reuse. Tremendous cost savings in chemical purchasing, waste storage, waste minimization, and disposal have been realized.

Naval Station Norfolk's most recent initiative is to launder soiled shop towels for the submarines when they are in home port. The service is unique in that the oily shop towels are laundered using microbes to consume the hydrocarbons. The wash/rinse water is discharged to the sanitary sewer after a short dwell time of 3 to 7 days. Petroleum-based oil and grease concentrations are reduced to well below discharge limitations. This laundry service saves an additional \$37,000 in procurement costs and reduces the oily absorbent waste stream by 60% annually.

For more information, please contact J. J. Hoyt at (757) 462-7063 or hoytjj@pwcnavy.navy.mil.

A P2 Alternative For The Transportation Equipment Cleaning Category

By Matt Cox, Industrial Waste Manager, HRSD

Facilities that generate industrial wastewater from cleaning the interior of tank trucks, closed-top hopper trucks, rail tank cars, closed-top hopper barges, and ocean/sea tankers are now regulated under the new Transportation Equipment Cleaning (TEC) pretreatment standards. These new pretreatment standards include more stringent effluent limitations. However, the new standards provide the industrial user with an option to implement P2 initiatives under a formal Pollution Management Plan, in lieu of achieving compliance with the new pretreatment standards. While local limitations remain in effect, the Pollution Management Plan will provide the industrial user with an alternative approach to achieve compliance. The Pollution Management Plan will include the following:

- Documentation identifying all cargoes.
- Documentation identifying incompatible cargoes likely to cause upset or pass-through at the POTW (treatment plant).
- Management procedures for all incompatible cargoes (recycle, reuse, effective pretreatment, or proper offsite treatment or disposal).
- Proper draining, segregation, and disposal of heels (product residue left in the tank).
- Appropriate management procedures for prerinse, presteam, and detergent wastes.
- Adequate documentation of all waste management procedures, operator training, and maintenance records of the pretreatment system.

This new compliance approach provides industrial users with an option to either comply with the new effluent limitations or to comply with existing local limitations and develop a Pollution Management Plan. This flexibility allows the industrial user to actually tailor the method of compliance to the specific needs of TEC operation, as well as allow for a more cost-effective compliance alternative. Contact Matt Cox at mcox@hrsd.dst.va.us or (757) 460-7048 if you have any questions or need further information.

CONGRATS!

Virginia Military Institute has awarded NOVA Chemicals' Chesapeake facility 1st place for the Environmental Innovation Award, Business and Industry category. The award recognizes innovative environmental technology that makes great strides in solving Virginia's environmental challenges.

FEATURED INDUSTRIES: P2 Award Winners

U. S. Air Force, Langley Air Force Base (Hampton)

Langley AFB installed water evaporators for hangar floor-scrubbing water. Previously, the water had to be hauled offsite because it did not meet minimum HRSD discharge requirements. This change reduced the waste stream by 98% and resulted in an annual cost savings of over \$60,000. Langley also switched to digital film processing, completely eliminating the silver-bearing waste streams from the sanitary sewer system.

NOVA Chemicals (USA), Inc. (Chesapeake)

NOVA Chemicals had an impressive 25 P2 programs and projects listed in their nomination package. Here are some examples: NOVA installed a high-tech centrifuge, which reduced polystyrene particles in wastewater. Because polystyrene is one of the products produced by NOVA, they realized a new revenue of \$1.7 million. NOVA Chemicals also had a 99.8% reduction in hazardous wastes generated, from more than 2 million pounds per year to less than 5,000 pounds. As a result, they are now considered a small-quantity generator.

Catalina Cylinders, Cliff Impact Division (Hampton)

Catalina Cylinders replaced a hazardous lead-based graphite chemical with a nonhazardous substance. This conversion saved the industry over \$5,000 in annual

disposal costs. They also realized a savings of nearly \$20,000 in new chemical costs and an estimated savings of \$10,000 in health-related costs.

NASA, Langley Research Center (Hampton)

Water conservation projects were the highlight of NASA's involvement in pollution prevention. The 1st project improved the design for cooling the air pre-heaters at the steam plant. Water was rerouted from cooling tower drains and reused to cool bearings. This resulted in a savings of over 2.6 million gallons of water at over \$7,700 a year. The 2nd project involved relocating the steam plant's sample coolers used to monitor water quality. Prior to the change, 50,000 gallons per year had been discharged. This water is now recycled to the cooling towers for reuse. An added benefit was that the 9 sample coolers normally replaced every 5 years now do not need to be replaced for 15 years.

Shorewood Packaging Corporation of Virginia (Newport News)

Shorewood Packaging made many changes in chemical use at their plant. They replaced toluene with a less hazardous substance. They also installed new plate-cleaning equipment, with a savings of over 4,000 gallons per year of solvent and an annual cost savings of over \$38,000. Shorewood also began segregating nonhazardous solvent waste from the hazardous

solvent waste, realizing savings of over \$50,000 in disposal costs.

Naval Ophthalmic Support and Training Activity (NOSTRA), Naval Weapons Station (Yorktown)

NOSTRA produces over 430,000 pairs of prescription eye wear annually for the Department of Defense. They installed a high-efficiency centrifuge in the lens-finishing department for the edgers. This unit allowed coolant to be cleaned and recycled in a closed-loop system. This system reduced water consumption by over 12,000 gallons per month, a 95% reduction over the previous method. Additional filtration systems in the process were added, resulting in a 75% reduction in water usage and a 90% reduction in plastic polish waste.

Southern Atlantic Label Company, Inc. (Chesapeake)

Southern Atlantic Label employs a reusable cleaning chemical for their flexographic printing plates. The chemical is cycled to a recovery unit that separates impurities. The cleaned solution is then reused. Previously, they had to haul 104 drums of hazardous waste per year, with a disposal cost of over \$36,000. The current disposal cost is about \$1,700, resulting in a savings of over \$34,000 per year.

Other Noteworthy P2 Applications

Our congratulations to all HRSD P2 award winners for 2000. All nominations were very impressive this year. In addition to the winners' accomplishments reported in this newsletter, I'd like to highlight some P2 projects of other nominees:

C. S. Polymers (Newport News) had been shipping used xylene as a hazardous waste, costing the company \$0.46 per gallon. Through extensive research, C. S. Polymers was able to locate a buyer who would pay them \$0.05 per gallon. The buyer would use the waste xylene in the manufacture of gasoline. C. S. Polymers realized a net gain of \$0.51 per gallon, resulting in a \$13,515

savings in 2000. Additionally, because the xylene is being used in another product, it does not have to be shipped as a hazardous waste.

Anheuser Busch (Williamsburg) had been using a hazardous ink in the coding of bottles and cans at the brewery. A process switch to lasers completely eliminated the hazardous waste stream.

The Naval Medical Center (Portsmouth) was using standard x-ray technology at the health care facility. They recently began using the latest Computer Enhanced Digital x-ray technology. The Medical Center was able to eliminate 75% of the standard x-ray film

processors, which in turn eliminated 14 silver recovery units that were discharging to the sanitary sewer.

As I mentioned, all the nomination packages were impressive this year. The commitment to pollution prevention is obvious. Please remember that businesses that do not win an HRSD P2 award this year may resubmit these accomplishments for consideration in the 2001 award application or submit additional or new accomplishments. Thanks to all the participants. I look forward to seeing the applications for next year's awards.

– *Ed Hartman, Water Quality Specialist*



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