

ENVIRONMENTAL SYNOPSIS

The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman



I read some good news recently, and since good news is often hard to find, I thought I would share it with our readers.

The headline read, "DEP: State's largest waste tire pile no more." A sub-headline proclaimed, "Last Remaining Tires from Starr Property in Columbia County Removed." A second news release from my House colleague Rep. David Millard (R-Columbia), whose district includes the Starr site and who was a leading advocate in cleaning up the Starr pile, carried a heading that was much the same: "Pennsylvania's largest tire pile is now history."

To anyone who has seen, lived near or had to deal with the waste tire pile known as the Starr tire pile, the news above was no doubt greeted with delight and exclamations of "at last" or "it's about time." It is estimated that the Starr tire pile in rural Greenwood Township, Columbia County had six million tires – or more - on site. And the site existed for 21 years. That's a constant threat of fire, West Nile virus, water quality degradation, and public health problems for everyone who lived nearby. Not to mention the eyesore the tire piles presented.

I'm pleased to say that on September 4, 2008 the final load of waste tires at the site was shredded and removed

under a state contract.

The Joint Legislative Air and Water Pollution Control and Conservation Committee (Committee) visited the site back in 2005 and was amazed at the size of the site and the number of tires there (see photos on p. 8). It was piles like the Starr pile that helped build momentum for the legislation the Committee was instrumental in preparing, drafting and seeing through to enactment – the Waste Tire Recycling Act, also known as Act 190 of 1996. Without that act, the Starr pile and others like it may well have sat for another 21 years and longer, unless they would have caught fire and fouled the air for days or weeks.

The very size of the Starr pile in particular is one factor that made the site so difficult to finally clean up, because it could not easily be funded all at one time. Legal battles over responsibility for the tires also made for lengthy, convoluted court proceedings with motions, counter-motions, legal discussions and research. It took a

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NOTES FROM THE DIRECTOR

CRAIG D. BROOKS, EXECUTIVE DIRECTOR

Home Depot announced this past summer that it will now accept compact fluorescent light bulbs (CFLs) for recycling in each of its more than 1,900 stores nationwide. The initiative, which aims to keep mercury-containing bulbs out of landfills, is the first nationwide effort by a retailer.

The past few years have seen tremendous growth in the promotion of the use of CFLs in the place of traditional incandescent bulbs. But industry has only recently realized that when the bulbs burn out they should not – or in some cases cannot - be thrown in the garbage. In most cases, people had nowhere to take them.

For more information on EPA's recommendations on handling of mercury go to <http://www.epa.gov/mercury/spills/index.htm>

Customers can now take expired, unbroken CFL bulbs to the returns desk at any Home Depot store. Home Depot will also accept bulbs bought from other retailers for recycling. The company turns the bulbs over to a recycling management company which coordinates the packaging, transportation and recycling. These CFL recycling programs are coming along at an important time. As the use of these bulbs increases, so will the need for recycling them.

The number of people using CFLs has risen dramatically in just the last two years. According to the Environmental Protection Agency (EPA), in 2006 it is estimated that the market share of Energy Star-qualified CFLs jumped to about 11 percent, compared to a market share consistently less than five percent in the early part of the decade. Sales in 2007 totaled approximately 290 million bulbs.

It has been estimated that in approximately five years, a half a billion of these bulbs will need to be replaced. According to the EPA, CFL bulbs use about 75 percent less energy than standard incandescent bulbs and last up to 10 times longer. The agency also says that the bulbs save about \$30 in electricity costs over each bulb's lifetime and produce about 75 percent less heat.

The bulbs do contain about 5 milligrams of mercury, which is a relatively small amount when compared to that of older home thermostats and mercury fever thermometers, which contain about 500 to 3,000 milligrams. Still, with nearly 3 million CFLs sold in the United States, the bulbs must be handled carefully. If they break, special cleanup procedures must be followed. Home Depot and the EPA suggest that if you have a problem with a broken bulb, don't handle it with bare hands. Pick up the fragments with a paper towel, seal everything in a plastic bag and take it to the nearest recycling center.

Home Depot's program will make it easier for more people to recycle, since there's a Home Depot within 10 miles of 75 percent of the American population, according to Home Depot itself. However, several other companies also have CFL recycling programs. Ikea recycles the bulbs, as do some True Value hardware stores. All stores in the Menards hardware store chain in Minnesota recycle CFL bulbs and recently Home Depot Canada launched a CFL recycling program.



RESEARCH BRIEFS

Each month, the committee's staff researches and prepares a number of "briefs" on several topics relevant to the Joint Conservation Committee's mission. Very often, these briefs include references to reports and further research on the topics so that readers may pursue issues on their own.

Climate Change Is a Burning Issue in Western United States

– Tony M. Guerrieri, Research Analyst

In 2008, the hundreds of fires, large and small, that burned grass and forests across the American West has been a cause of general public concern. There is a great diversity of viewpoints on the possible causes of the severity of the current wildfire situation. The culprit, according to a report by the National Wildlife Federation (NWF), is none other than climate change.

The NWF's 2008 *"Increased Risk of Catastrophic Wildfires: Global Warming's Wake-Up Call for the Western United States"*, suggests that a broad change in the West's climate – rising temperatures and drier conditions – has produced intense wildfires that occur more frequently, last longer, and cover more ground than they did in the past. The report concludes that a changing climate was the most important factor driving a four-fold increase in the number of major wildfires each year since the mid-1980s, and a six-fold increase in the area of forest burned compared with the period between 1970 and 1986.

The Western wildfire season generally begins in late spring and lasts into fall. All told, the average fire season now stretches about 78 days longer than historic levels, while fires have become harder to extinguish. They burn longer, typically burning about 30 days longer.

According to the report, climate change provides greater opportunities for large fires in several ways. For example, longer fire seasons result as the mountain snowpack melts one to four weeks earlier than 50 years ago. Drier conditions will increase the probability of fire occurrence. Summertime temperatures in the West are projected to be 3.6 to 9 degrees higher by mid-century, with precipitation expected to drop by up to 15 percent.

More fuel for forest fires will become available because warmer and drier conditions are conducive to widespread infestation by beetles and other insects, resulting in wide areas of dead or dying trees ready to burn. In addition, increased thunderstorm intensity could increase the amount of lightning across the region by 12 to 30 percent, sparking a larger number of fires.

Overall, the area burned is projected to double by the end of this century across 11 western states if

the average summertime temperature increases 2.9 degrees Fahrenheit, with Montana, Wyoming, New Mexico and Utah being hit particularly hard. Alaska also is expected to see the area of forests burned increase by a factor of two or three, primarily due to longer growing seasons and shifts in vegetation.

A second factor in the larger fires, according to the report, is the unintentional consequences of a century-long policy of fire suppression allowing combustible vegetation to build up to dangerous levels. The underbrush is now the primary fuel for extreme wildfires.

The NWF pins the blame for more frequent, longer and larger wildfires on climate change

Another unfortunate aspect of the interaction between climate change and wildfires is the fact that the wildfires are responsible for a huge proportion of annual carbon dioxide (CO₂) emissions and this, in turn, fuels climate change. Forests sequester CO₂ and in the 1990s they removed one-third of the global warming pollution released into the air during those 10 years, the report states. Catastrophic wildfires like those listed in the report, however, release significant amounts of CO₂ into the atmosphere, requiring decades before enough forest can grow back and provide the same benefit again. In recent years, fires in the western United States have released CO₂ into the atmosphere equivalent to about 11 percent of their annual fossil fuel emissions.

Although fire is a natural and beneficial part of many forest ecosystems, the number and intensity of fires today is challenging fire managers and forest communities throughout the west. In 2007, for example, 3.2 million acres burned in the Great Basin region of Utah, Nevada, and Idaho, more than 1.1 million acres burned in the Northern Rockies, and a half million acres burned in Southern California. Together with more than a million acres that burned in Georgia and Florida earlier that year, 2007 was the second busiest fire season since 1960, with more than 9 million acres burned.

The increase in big wildfires comes with increased losses and escalating costs to fight these fires. Property losses from wildfires have averaged

more than \$1 billion each year over the past decade. Huge fires in heavily populated California have driven fire suppression costs up to record levels. Annual federal government expenditures on fire fighting in 2007 were \$3 billion, up from about \$1 billion in 1999. The U.S. Forest Service now spends 45 percent of its annual budget on fire prevention and suppression, up from 20 percent in 2000.

The report outlines a variety of measures to help reduce the mounting danger of wildfires and urges that some be implemented without delay. The NWF is recommending that policymakers, industry and individuals take steps to reduce greenhouse gas pollution associated with global warming by 2 percent per year, with a 20 percent reduction by 2020. According to the report, this is the only way to hold warming to no more than 2 degrees Fahrenheit in the next century.

The NWF also recommends changes in forest management policy involving selective forest thinning to reduce fire danger and adoption of a more tolerant attitude towards fire as a natural part of a healthy forest ecosystem. The report also advises jump-starting forest regrowth after catastrophic fires that leave an area susceptible to wind- and rain-driven erosion.

Further, the report recommends homes in fire-prone areas be built with fire-resistant materials and that buffer zones of at least 120 feet be established between homes and the forest. And the growing practice of building new subdivisions in places immediately adjacent to forested areas should be re-evaluated by local governments, the report said.

The National Wildlife Federation's report, "*Increased Risk of Catastrophic Wildfires: Global Warming's Wake-Up Call for the Western United States*", is available at: http://www.nwf.org/extremeweather/pdfs/NWF_WildfiresFinal.pdf.

GE Encourages Water Reuse and Recycling

– Craig D. Brooks, Executive Director

A unit of General Electric Co. (GE) has suggested a menu of regulatory actions and other practices that policymakers could use to achieve greater water recycling and reuse worldwide. In a white paper, "*Addressing Water Scarcity Through Recycling and Reuse: A Menu for Policymakers*", the company offers policies and examples from around the world on educating the public on recycling and reuse, changing local regulations, providing incentives for water users and developing mandates and regulations.

GE Water and Process Technologies is a global water treatment, wastewater treatment and process systems business. It also announced plans to reduce its own freshwater use by 20 percent over four years. With this announcement, GE plans to reduce corpo-

rate water use by 2 billion gallons annually at more than 115 GE facilities worldwide. GE said it would achieve this goal through improved production and employing water reuse technologies. The company, which used about 10 billion gallons of water in 2006, describes its reduction plan as the latest step to build innovative technologies that help customers address their environmental and financial needs and help GE grow.

The purpose of the white paper is to help communities and other government authorities think through their options for increasing recycling and reuse of water in their area, including efforts to:

- provide more information on and recognition of water recycling and reuse efforts;
- reduce or remove regulatory or cost barriers that prevent more water reuse or recycling;
- provide financial, regulatory or other incentives for water recycling and reuse; and
- require more water recycling and reuse.

Water recycling and reuse is most common in communities that face limited water supplies. Policymakers are always looking for ways to expand water reuse initiatives but until now, finding information was difficult. The paper provides a valuable starting point for governments to evaluate the appropriate mix of policies that will best fit their needs. For example, the California Eastern Water district provides information for landscaping, and industrial and agricultural businesses on ways to use recycled water including crop and landscape irrigation, construction site management and industrial processes. California requires its Department of General Services and Department of Transportation to install piping appropriate for recycled water reuse in any of their landscape irrigation projects.

Also, permitting requirements vary depending on the end use of recycled water. In Arizona, a general use permit allows the use of 400 gallons per day of grey water for irrigation for single family homes with no notification requirements. The paper also noted that the new Oregon water quality rules allow regulators to consider the benefits of appropriately treated wastewater for land application, upland wetlands application or other non-discharge alternatives in replenishing groundwater levels and increasing stream flows. The paper also noted that Arizona allows using sewage-free industrial wastewater on crops without a permit.

The GE white paper is available at http://www.gewater.com/who_we_are/press_center/whitepaper/2008/reuse_menu/index.jsp.

Brazil, India's Consumers Are Greenest, U.S. Consumers Rank Last

– Tony M. Guerrieri, Research Analyst

Americans rank last in a National Geographic-sponsored survey that reveals which country's citizens have the most environmentally friendly lifestyle by examining the impact of individual consumer behavior. The rankings, called *"Greendex 2008: Consumer Choice and the Environment – A Worldwide Tracking Survey"* looked at environmentally sustainable consumption among consumers in 14 countries. It is the first to rank the performance of individual consumers rather than countries as a whole.

The Greendex survey was conducted online among consumers in Australia, Brazil, Canada, China, France, Germany, Great Britain, Hungary, India, Japan, Mexico, Russia, Spain and the United States, which together represent more than half of the world's population and use about 75 percent of its energy.

Consumers in each country answered questions that measured their behavior in four key categories: housing, transportation, food and consumer goods. Each respondent earned a score that reflected the environmental impact of his or her consumption patterns. Consumers were then assigned a Greendex score (that reflected the environmental impact of their lifestyle) out of 100.

Greendex measures behavior in four categories: housing; transportation; food; and consumer goods

The findings show that consumers in Brazil and India tie for the highest Greendex score for environmentally sustainable consumption at 60 points each out of 100. Consumers of other nations scored as follows: China scored 56.1; Mexico 54.3; Hungary 53.2; Russia 52.4; Great Britain, Germany and Australia 50.2 each; Spain 50.0; and Japan 49.1. The other low scoring consumers are Canadians with 48.5 and the French with 48.7. United States consumers have the lowest Greendex score, or most wasteful, at 44.9.

Greendex scores were based on responses to questions about 65 sustainable development variables. For example, the housing component takes into account such variables as dwelling size relative to number of inhabitants, energy use for heating, cooling, and appliances, and water needs. Brazilians earned the highest score for housing, with fewer average rooms per home, rare use of air conditioning or heating and wide penetration of renewable energy. Japanese score second-to-last, partly due to the use

of oil for home heating. American consumers fare worst, with large homes and prevalent air conditioning. More Chinese and Indian respondents have installed solar panels to heat water. According to the report, of the four components of the survey, housing holds the greatest opportunity for increasing scores.

The transportation category consists of variables measuring, among others, ownership of motorized vehicles, size of vehicles and distance driven, use of public transportation, air and train travel, riding a bicycle, walking and location of residence relative to primary destination. Chinese consumers receive the highest scores due to widespread use of self-powered transportation and low (but increasing) automobile use. Consumers in the United States, where use of public transportation is way behind many other countries surveyed, ranked last, with Australian consumers second-to-last. Respondents in North America, France and Australia drive alone in a car or truck much more frequently than people in China, Brazil, India and Russia. Most Chinese (70 percent) say they never do.

The food component variables measure consumption of locally produced foods, foods grown or raised by oneself, and consumption of fruits, vegetables, beef, chicken, seafood and bottled water. Indian consumers far outscore the others by virtue of their low levels of meat consumption and high amount of fruits and vegetables eaten. In India, 84 percent eat locally grown products and 72 percent never eat beef. Australians and British also do well, with frequent consumption of locally produced food. Despite their top-four ranking overall, Japanese consumers score lowest in the food category, as both meat and seafood are large components of their diet. Mexicans rank second-to-last in the food component.

The consumer goods category, a combination of everyday consumption and waste disposal plus ownership of big-ticket items, consists of such variables as purchase and/or avoidance of specific products for environmental reasons, avoidance of excessive packaging, preference for reusable goods over disposable products and for used goods over new items, willingness to pay an environmental premium, recycling, and the number of TVs, PCs, refrigerators, dishwashers and laundry machines per household member. Consumers in China, India and Brazil decisively top the ranking, with widespread preference for green products and ownership of relatively few appliances and expensive electronic devices. Japanese consumers score highest among wealthy countries because of their preference for reusable items and moderate number of big-ticket items. American score lowest with low levels of avoidance of environmentally unfriendly products and excessive packaging.

Greendex respondents also answered six questions to assess their environmental knowledge, including "What was the primary cause of Earth's

recent temperature increase?”, “Which fuel produces the most carbon dioxide when burned?”, “What is the projected population of the Earth in 2050?” and “What is nearly all plastic originally made from?” The British were the top scorers with 3.24 correct, followed by Germans with 3.23 correct and respondents in Australia, Canada, Japan and Mexico with 3.21 correct. American consumers registered a score of 2.77. Lowest scorers were people in India with 2.13, Russia with 2.69 and China with 2.70 correct.

The Greendex 2008, which will now be conducted annually, found that the scores are likely to change in the near future as developing countries become more successful and their consumers demand a standard of living equal to that enjoyed by the wealthiest nations.

The 103-page report, “*Greendex 2008: Consumer Choice and the Environment – A Worldwide Tracking Survey*”, is available at: http://event.nationalgeographic.com/greendex/assets/GS_NGS_Full_Report_May08.pdf.

EPA White Paper Discusses Emerging Contaminants in Water

– **Craig D. Brooks, Executive Director**

The Environmental Protection Agency (EPA) announced in June 2008 that it has developed a white paper regarding water quality criteria to protect aquatic life from recently discovered water pollutants, or contaminants of emerging concern (CECs) that may require regulation. In a Federal Register announcement, EPA said the Clean Water Act authorizes the development of water quality criteria to protect aquatic life. Traditionally, these criteria – which include levels of individual pollutants, water quality characteristics and other data – have been developed using guidelines written in 1985. EPA uses the criteria as guidelines for states in formulating water quality regulations.

The purpose of the white paper is to provide general guidance on how water quality criteria development for CECs could be created through supplemental guidelines with particular attention to pharmaceuticals and personal care products. The variety of chemicals labeled as CECs leads to a variety of concerns for EPA. Widespread use and some indications of chemical persistence in the environment

have made it clear to EPA that some new criteria are necessary. CECs can be released directly to the environment after passing through wastewater treatment processes, which are typically not designed to remove these pollutants from the effluent.

Some CECs include:

- persistent organic pollutants (POPs) such as chemicals used in flame retardants, furniture foam and certain plastics;
- pharmaceuticals and personal care products including a wide range of human prescribed drugs including antibiotics and medicines for high blood pressure, and certain over the counter medications such as ibuprofen; and
- veterinary medicines such as growth hormones.

EPA suggests that some CECs, such as pharmaceuticals and personal care products exhibiting endocrine-disrupting activity or other toxic mechanisms have features that require additional considerations when applying the guidelines. For example, according to EPA, these chemicals may demonstrate low acute toxicity but cause significant reproductive effects at very low levels of exposure. The chemicals also have very specific ways of affecting certain types of aquatic animals. In addition, the effects of exposure during early stages of aquatic development may not be noticed until adulthood.

As a result, the agency suggests that traditional chronic toxicity tests that have been used since the mid-1980s may not be comprehensive enough to develop water quality criteria for CECs. However, the white paper suggests that the guidelines for some CECs can be modified or interpreted in such a way as to aid in the development of aquatic life criteria without adopting any shortcuts that would make the criteria less reliable. The white paper also suggests that there may be CECs for which regulatory guidance is needed but for which toxicity data is insufficient to meet the minimum standards of the guidelines.

In these cases, the white paper says that there may be a need for alternative approaches for developing interim regulatory guidance based on limited toxicity data until sufficient data can be gathered to develop more complete aquatic life criteria.

The white paper, “*Aquatic Life for Contaminants of Emerging Concern*” is available at <http://www.epa.gov/waterscience/criteria/library/sab-emergingconcerns.pdf>.

News to Use in the Environmental Synopsis... share it with a friend

The *Environmental Synopsis* is issued monthly.

The newsletter examines timely issues concerning environmental protection and natural resources.

If someone you know would like to receive a copy of the *Synopsis* each month, please contact the Committee office at 717-787-7570.



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ON THE HORIZON . . .

A LOOK AT UPCOMING EVENTS

✓ Thursday, October 16, 10 a.m., Penn Stater Conference Center, 215 Innovation Boulevard, State College, PA – Meeting of the Joint Legislative Air and Water Pollution Control and Conservation Committee’s (Committee) Sewage Task Force. (This meeting was rescheduled from September 18.) *

✓ Thursday, October 23, 10 a.m., Penn Stater Conference Center, 215 Innovation Boulevard, State College, PA – Meeting of the Committee’s Forestry Task Force. (This meeting was rescheduled from October 2.) *

* Please call the Committee office at (717) 787-7570 if you plan to attend.

COMMITTEE CHRONICLES . . .

REVIEW OF SOME MEMORABLE COMMITTEE EVENTS

Members of the Joint Legislative Air and Water Pollution Control and Conservation Committee’s (Committee) staff recently joined lawmakers on a tour of the Glatfelter Paper Spring Grove facility in York County. The massive plant (see the two photos at right), which offers specialty papers and composite fibers, manufactures its own pulp as well as the paper made from that pulp at the Spring Grove plant. Worldwide, Glatfelter employs approximately 3,700 people. In Pennsylvania alone, the company employs 971 people and has an annual payroll of nearly \$63.2 million.

Glatfelter prides itself on its energy efficiency and conservation and on making maximum use out of the products and by-products created throughout the manufacturing process. During the walking tour (see photo below) lawmakers and staff learned how the papermaking

process works and how the plant creates energy sources during the manufacturing process. The company is interested in having pulp and paper biomass products play a larger role in the state’s Alternative Energy Portfolio Standard.



In the photo at left, State Representatives Eugene DePasquale (D-York) and Greg Vitali (D-Delaware) (fifth and sixth from left respectively) take time out from a post-tour meeting for a photo with the Glatfelter officials who hosted the day’s events. Also in attendance for the tour was the staff of Sen. Mike Waugh (R-York).

great deal of time and effort to overcome the legal ramifications related to the site.

The other good news about the cleanup of the Starr pile is that the tires were not simply landfilled, which would have created another problem down the road, but were put to a variety of beneficial environmental uses. For example, some of the tires were ground into crumb rubber and used for playground facilities. Two thousand large construction tires found their way to the ocean, baled together and filled with concrete to make an artificial reef off the coast of Delaware. Other uses were as fuel supplements, parking bumpers, as part of asphalt mixes, as filler to repair an entrenched dirt road and the like.

The photos accompanying this article show scenes of the Starr tire pile in the winter of 2005 when limited remediation had taken place

The diversity of reuses speaks to the creation of new markets for waste tires, an issue the Committee has been pushing over the years since the enactment of Act 190. This too has been a long process, but new markets have opened up and continue to open up. It also speaks to the willingness of the Department of Environmental Protection (DEP), state and local officials and businesses to look for creative alternative solutions to problems like this one. Five companies and Penn State University received state grants over the past four years to remove tires from the Starr pile. DEP also took legal action against 20 generators which brought tires to the site, as well as placing sanctions and restrictions on the property owners.

Pennsylvania has made great progress in cleaning up waste tire piles since Act 190 of 1996 became law. A 2007 report issued by the Joint State Government Commission stated that cleanup efforts since 1996 have resulted in the reduction of waste tires in piles in Pennsylvania from approximately 36 million to about 9.1 million. Keep in mind that Pennsylvania still creates 12 million "new" waste tires annually. Presently, these new tires are being used and not going into new piles.

That's the good news. The report by the Joint State Government Commission, to which the Committee provided input, also pointed out some shortcomings in state policy and offered some recommendations which deserve to be looked at. The committee continues to take great interest in waste tire recycling and reuse and I'll be commenting on some other aspects of the report in future issues of the *Environmental Synopsis*.



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