



The Upper Peninsula

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# Environment

April/May 1994

## ♦ Annual Meeting

### Mark Your Calendar

The U.P.E.C. Annual Meeting is slated for May 13. Although that's Friday the 13th, the event promises to be a good time for all members who are ready to say good-bye to winter for another year. The meeting will take place at the T-Bar at the Marquette Mountain Ski Hill and will include dinner, talks, and dancing. A cash bar will be open at 5:00 p.m. for those who wish to attend the social hour. Festivities will get underway with a pot

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luck supper at 6:00 p.m. Bring your favorite dish to share. Be sure to bring your own dishes too since kitchen facilities will not be available.

After dinner U.P.E.C. President Jerry Smith will give members an update on what the organization has accomplished over the last year and the goals set by the board of directors for next year. The featured speaker will be Joan D'Argo of the Greenpeace Great Lakes Office in Chicago. Many of you have worked with Joan over the last few years on the Zero Discharge issue. She was especially active with the *U.P. For Zero Discharge* group and U.P. representatives to the *Zero Discharge Alliance*. Joan made sure the Greenpeace bus toured U.P. cities, and that the Greenpeace ship, *Moby Dick*, stopped at U.P. ports of call during the Zero Discharge Campaign. She plans to tell us how the movement has expanded from the Great Lakes Basin to all of



photo by Scot Stewart

North America. She will update us on the effort to ban chlorine and discuss her work with the *Women, Health and The Environment Project*. The project focuses on the ways that toxic chemicals affect our health. She also wants to tell U.P. activists about how they can help with the *Time Magazine* campaign which seeks to persuade *Time* to switch to chlorine-free paper. The rationale behind this campaign is that other magazines will follow suit. This campaign is significant to U.P. environmentalists because, if successful, a chlorine-free magazine trade will lessen the pressure for chlorine pulp mills in our region. All you Zero Discharge activists will want to be present!

## ♦ Wastewater Treatment

### New Wave: Ultraviolet

The essence of the Zero Discharge movement is to change production processes in order to create and use as few toxic chemicals as possible, especially the bad actor, chlorine. For years, environmentalists have hemmed and hawed about wastewater treatment because it seemed unlikely that treatment plants on a large scale could disinfect water without using chlorine. Wastewater treatment plants account for about 14 % of the chlorine

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used in this country. Now, however, it seems that we can have wastewater treatment, nationwide, without chlorine, just as we can have high-quality white paper without chlorine bleaching. The new wave in wastewater treatment is ultraviolet light. Actually, ultraviolet technology has been around for about fifteen years. Improvements in technology coupled with the expense and danger involved in chlorine use have made ultraviolet an attractive, cost-effective alternative in wastewater treatment.

The wastewater treatment plant in Ashland, Wisconsin is a case in point. The plant has been in operation for about two years now and was the first in northern Wisconsin to use ultraviolet light. Ashland wanted to avoid hazardous chemicals since there are now

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## Chlorine, Ego, And Testosterone

by Don Snitgen

**W**ho needs another deadline? Why do I indulge in self-induced stress? When I was asked to write an article for *The Environment*, I should have said, "No!"

You're talking to Billy-Burn-Out here. Screw the environment! Let the developers have it all. Ravage the hell out of everything. Thirty years of fighting eco-rape has left me an eco-cinder. I want to follow Edward Abbey's advice with respect to environmentalism: "Do not burn yourselves out. [Too late for me!] Be as I am--a reluctant enthusiast . . . a part-time crusader, a half-hearted fanatic. Save the other half of yourselves and your lives for pleasure and adventure. It is not enough to fight for the land; it is even more important to enjoy it. While you can. While it's still here. So get out there and hunt and fish and mess around with your friends, ramble out yonder and explore the forests, encounter the grizz, climb the mountains, bag the peaks, run the rivers, breathe deep of that yet sweet and lucid air, sit quietly for a while and contemplate the precious stillness, that lovely, mysterious and awesome space. Enjoy yourselves, keep your brain in your head and your head firmly attached to the body, the body active and alive, and I promise you this much: I promise you this one sweet victory over our enemies, over those desk-bound people with their hearts in a safe deposit box and their eyes hypnotized by desk calculators. I promise you this: you will outlive the bastards."

But the chlorine-ego-testosterone thing is so incredibly ironic,

the joke is so good, it's worth coming out of cinderhood. Here's the deal. The insatiable drive to accumulate more and more things, far beyond necessity, is in our genes. It's dictated by the peck order. The Alphas, followed by the Betas, on down the Greek alphabet. The Alpha makes more money, has more things, and, most importantly, gets to copulate more frequently. And, it's all driven by the male androgen circulating through our bloodstream.

During our evolutionary infancy, an established peck order probably contributed to our success as a species, enabling groups of humans to cooperate and survive. Now, superimposed upon our collective knowledge and culture, this behavior is inappropriate. Rather than protecting our tribe, clan, group, family, state, nation . . . it provokes war, racism, chauvinism. And, probably, is contributing to the extinction of our species!

Granted, extinction is the natural culmination for all species. After all, 99% of all species that have ever lived on the earth are extinct. But, think of our ego. Do you want to take credit for bringing about the extinction of our own species? As a biological rule, one sure way to relegate a species to extinction is to interfere with its reproductive capacity, even in a tiny way.

What is the chlorine connection? Well, there are a bunch of industries that turn chlorine into all kinds of useful stuff, such as war gas. Using chlorine to disinfect our water supply has probably kept us from succumbing to a plague. Our clothes washings come out whiter than white! And we have that wonder of conveniences, the styrofoam cup. The trouble is that all this chlorine and its offspring end up in our water and food supply. Wherever you look, you'll find these wonderful products of the age of organic chemistry.

The common thread which ties

these myriads of chlorinated molecules together is that, biochemically, they mimic estrogen. Males and females both have estrogen and testosterone in their blood. It's the relative amounts that make the difference. Everyone knows that too much estrogen is bad for women. Its effect upon men is to slide them closer to the female end of the male-female sexuality spectrum. Estrogen tends to undo the influence of the male hormone, testosterone.

Sex hormones have a powerful effect early on in the developing embryo. Recently reported statistics about cancer of the testes and penis, or the measurable decrease in sperm count in humans, or the improper development of the genitalia in human male embryos may be related to increasing amounts of chlorinated chemicals in our environment.

Now, the ego connection. My theory is that testosterone drives the human male to strive to be the peck order Alpha with an Alpha house and an Alpha wife and Alpha kids and an Alpha dog and an Alpha car and an Alpha sailboat . . . Now it's all in jeopardy! Estrogenic chlorine compounds threaten the very basis of biological machismo. This ecosystem-devouring peck order is doomed by its by-products. No more sperm. No more humans. Increased estrogen in males. Decreased libido. Too much estrogen in the blood stream of women pregnant with male embryos. Improper development of male gonads. We're becoming effeminate because of our addiction to chlorinated necessities. If my premise is true, that over-exploitation of natural resources is a consequence of the testosterone-driven peck order, then the estrogenic effect of chlorinated hydrocarbons will solve the problem. The Alphas are cutting off their own testicles by spewing more and more chlorine and its derivatives into the environment.

The chlorine related industries

◆ Chlorine

claim there is no way in hell they shall willingly quit dumping all these toxic chemicals into the ecosystem. They claim the whole world will collapse if we stop using chlorine in the manufacture of everything. And, besides, they say, you can't prove any of this anyhow. Can I prove any of this? No. Are there research data which support my hypotheses? Yes!

If you want to try to stop being poisoned, learn how you can register comments with the Environmental Protection Agency on the Lakewide Area Management Plan (LaMP). Tell them you will settle for nothing less than zero discharge in Lake Superior. Tell them the list of chemicals presently being considered is far too short. Tell them all the toxic substances being flushed into the biosphere need to be added to the zero discharge list. Tell them there should be a moratorium on the manufacture of chlorine and its chemical derivatives. Tell them that suitable, non-toxic alternatives to chlorine must be developed. Except, perhaps, for war gas. Chlorine makes a great war gas.

*Longtime UPEC member, Don Snitgen, is a professor of biology at NMU. For those who want more information on how toxic chemicals mimic the effects of estrogen in humans, he suggests reading articles by Janet Raloff in Science News, Vol. 145, 1994, including "The Feminine Touch," Jan 22, pp. 56-59; "The Gender Benders," Jan 8, pp. 24-27; and "Manhood's Cancer," Feb. 26, pp. 138-140. Newsweek published "The Estrogen Complex," in its March 21, 1994 issue.*

**Comments on the LaMP will be accepted until May 16, 1994. Address them to Ms. Jeanette Collins, U.S. E.P.A., Region V (WQ-16J), 77 West Jackson, Chicago, Illinois 60604.**

**Editorial**

## IJC Appointment Raises Question

**R**ecently, Thomas Baldini of Marquette was appointed by President Clinton to chair the U.S. panel of the International Joint Commission. At the time of his Senate confirmation hearings, he said, as far as the Great Lakes are concerned, "The good news is there's no major crisis." This statement is ironically counterpoised to the position of the IJC itself. In a news release dated February 17, the IJC wrote, "Mounting evidence reinforces concerns that exposure of fish, wildlife and humans to persistent toxic substances . . . is linked to long-term reproductive, metabolic, neurological, behavioural and intergenerational effects. Latest research findings point to possible human effects such as a startling decrease in sperm count, an increase in male genital tract disorders, rates of breast cancer at epidemic rates, and declining learning performance and increasing behavior problems in school children." In a paper titled *Supplemental Information to the Seventh Biennial Report*, the IJC declared that "exposure to persistent toxic substances is the most significant problem facing the Great Lakes region," and listed numerous studies to back up its statement of Feb. 17. No major crisis?

Several years ago, Germany discovered that most of its citizens had dioxin levels in their bodies that were higher than the acceptable level. How did Germany solve this problem? *It raised the acceptable level of dioxin.* To solve a problem by denying its existence is not a unique problem-solving strategy. It's as old as the emperor's new clothes. For some time now, environmentalists have felt an affinity with the IJC, the only governmental agency that seems able to

**The Upper Peninsula Environmental Coalition was organized on December 6, 1975. The goals of the coalition are to protect and maintain the unique environmental quality of the U.P. of Michigan; to evaluate and promote planning and sound management decisions for all the resources of Michigan's U.P.; and to work toward these goals through coordination of member groups, individual members, and public information.**

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**Membership in U.P.E.C. is open to all individuals and organizations who wish to support the goals of the Coalition. Applications for membership should be sent to P.O. Box 34, Houghton, Michigan 49931-0034. News items and submissions to *The Environment* should be sent to P.O. Box 847, Marquette, Mi. 49855. U.P.E.C. is a nonprofit organization [IRS 501 (c) (3)] and dues and contributions are U.S. tax deductible to the extent allowed by law.**

◆ Editorial

address the environmental ills of the Great Lakes Basin without economic blinders. The International Joint Commission is only an advisory body. Although the concept of a sustainable economy is compatible with both jobs and a clean environment, our governmental leaders do not seem to believe this. How annoying it must be to have the IJC continually advising them that they must do something to stop the toxic chemical substances that go hand in hand with our modern, nonsustainable economy. Could there be a simpler way to lessen the impact of the IJC than to water it down with new members who seem intent on lessening the *perception* of the problem?

Mr. Baldini has no particular expertise in environmental issues. He has been a high school teacher and a part-time instructor at NMU, and, for the last few years, an assistant to the superintendent of the Marquette Area Public Schools. His friends say that he is an intelligent, fair-minded man. Those who are concerned about the Great Lakes Ecosystem, however, simply wonder this: When it comes to the environment, will the educator prove himself educable?

◆ Annual Meeting

Finally, we'll kick up our heels and dance to the music of the popular band, *Trout Revenge*. Those of you who attended the AWAKE benefit dance in Houghton in Oct. of 1992 will remember this group.

If you are coming from out of town and need a place to stay, please contact one of the Marquette board members. Note that a major convention is in Marquette that weekend, and motel rooms are already booked. Options include camping at Marquette's Tourist Park or the Gitchee Gumee Campground on Lake Superior east of the city. We hope to have a good turnout for this meeting and to have a lot of fun as well.

There is no charge for the dinner or talk, but U.P.E.C. welcomes a \$5.00 donation for those who want to stay for the music. If you have any questions, contact Jerry Smith at 339-2961.

◆ New Wave: Ultraviolet



many costly safety measures associated with storage and use of chlorine, such as scrubbers for chlorine gas. As expected, U.V. has been very economical for Ashland.

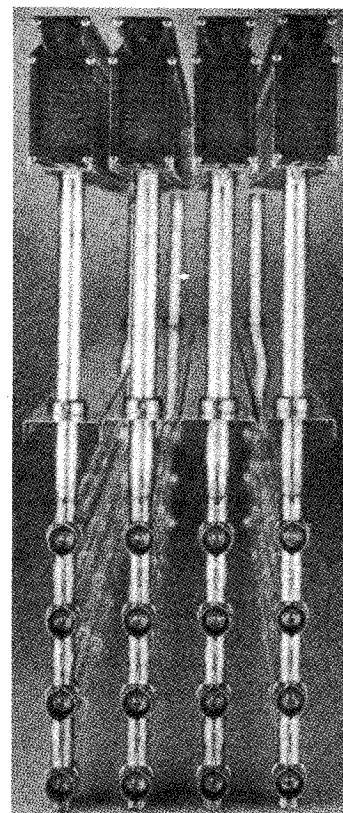
How does U.V. work? Wastewater is run through banks of mercury arc lamps where U.V. light destroys the DNA in microorganisms rendering them incapable of reproduction. This effectively kills mold, bacteria, algae, etc. In fact, U.V. is far more efficient at killing viruses than chlorine. It also takes less time. At 253.7 nanometers, U.V. works in 6-10 seconds as compared to the 15-30 minutes it takes chlorine to disinfect water in a contact tank. Another advantage to U.V. is that it is not necessary to build extra holding tanks for peak flow periods, nor is it necessary to erect extra buildings for chemical storage.

U.V. cannot penetrate suspended solids, so pretreatment is sometimes required (or higher doses of U.V. may be used), and alarm systems are built into the system. The lamps, enclosed in sleeves, are built into modules which are connected to a power source. Lamp life is between 10,000 and 15,000 hours.

Because the lamps use mercury, this technology is not free of toxic chemicals. However, a process using a contained chemical is better than bringing chlorine in contact with organic matter. When chlorine reacts with humic and ful-

vic organic compounds, trihalomethanes are produced. U.V. does not create any new chemicals, nor does it create an off odor or taste in water. U.V. does not expose workers to danger either. In a worst case scenario, a worker could receive a bad sunburn from standing in front of a bank of lamps that were turned on but not submerged. However, this is a very unlikely happening.

U.V. plants are coming on line in more and more cities including Reedsburg, WI., Mora, MN., and West Branch, MI. Those of you who are involved in wastewater treatment should know that Ashland consulted the engineering firm Bonestroo, Rosen, Anderlik, and Associates (800-880-4700). Their system was provided by Trojan Technologies, Inc., 3020 Gore Road, London, Ontario N5V4T7. Telephone: (519) 457-3400 Fax: (519) 457-3030. Note also that Trojan has systems for treating well water.



Trojan UV 3000 light module  
photo courtesy of Trojan Technologies, Inc.

***Yes, I want to protect the U.P.!***

Name \_\_\_\_\_ Street/P.O. Box \_\_\_\_\_

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I would like to support the goals of UPEC by becoming a member. My annual dues are enclosed. Check one:

Supporting \$50

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Lifetime \$500 (payable in two installments of \$250/year)

Here's an additional contribution of \$\_\_\_\_\_.

Please send my nonprofit group information about organizational membership. Annual dues for organizations are \$35.

I would like to help ensure the long-term protection of the Upper Michigan environment by contributing to the UPEC Endowment. Enclosed is a donation of \$\_\_\_\_\_.

**Dues and contributions are tax-deductible. Please fill out the form above and mail to: Upper Peninsula Environmental Coalition, P.O. Box 34, Houghton, Michigan 49931-0034.**

***The goal of the Upper Peninsula Environmental Coalition is to protect and maintain the unique environmental quality of the Upper Peninsula of Michigan***

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