United States
Environmental Protection
Agency

Office of Pollution Prevention
Washington, DC 20460

May 1991

EPA

Pollution Prevention News

Inside:

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U.S. EPA
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Editor's Corner

The 33/50 Challenge

Susan Hazen, Director
Special Projects Office
EPA's Office of Toxic Substances

EPA's 33/50 Program is off to an auspicious start. The program aims at achieving a 50 percent reduction by 1995 (with an interim reduction of 33 percent by 1992) in chemical wastes reported to the Toxics Release Inventory. The challenge will be in achieving these reductions through pollution prevention and through voluntary commitments from industry, rather than through regulations. But there is a growing assurance that the program can work.

Everything we have seen so far convinces me that voluntary reductions can bring about great environmental benefits and a strengthened role for workers and communities, while leaving industry the maximum amount of flexibility for implementing solutions.

Even before asking for industry responses to the 33/50 Program, we received almost 100 enthusiastic letters from companies. Listen to what they have to say:

Hewlett -Packard Company:
Voluntary efforts led by EPA. . . have great potential for realizing significant reductions in chemical emissions nationwide.

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EPA, USDA to Fund Joint Grant Pool

$2 million for sustainable agriculture projects available under joint agreement

EPA and the U.S. Department of Agriculture (USDA) have joined forces in one of the first cross-Agency cooperative grant programs in the federal government.

In FY 1991, the Office of Pollution Prevention at EPA and the Sustainable Agriculture Research and Education Program (previously known as the Low-Impact Sustainable Agriculture (LISA) program) of the USDA Cooperative State Research Service will distribute grants from a $2 million joint pool to fund projects involving education, demonstrations, research on reducing impacts on wildlife and fish habitat, and studies of economic implications of sustainable agriculture.

Host institutions in four regions of the country (northeast, south, north central, and west) are managing the evaluation, project selection, and distribution processes for their regions. Evaluation panels include representatives from government, academic and other research institutions, farmers, the environmental community, and other private or public organizations.

Highest priority is being given to integrated systems projects, which functionally integrate the findings of many research studies and direct experience into a managerial (whole-farm) or natural system context.

A whole-farm type of study includes estimation of the overall performance of alternative farming systems. Natural system projects are integrated systems studies that increase understanding of the interactions

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Reports from EPA Offices

Enforcement Policies Encourage Settlements Tied to Prevention

EPA's Office of Enforcement has issued a policy statement that strongly encourages Agency negotiators to try to incorporate pollution prevention conditions in single and multi-media settlements when feasible. The policy, effective immediately, is applicable to both civil and criminal enforcement settlements involving private entities, federal facilities, and municipalities. However, the policy notes that respondents will not be granted additional time to correct a violation in exchange for conduct of a supplemental environmental project, although some flexibility may exist if the pollution prevention activity represents the means of correcting the violation.

Among the types of situations which favor the use of pollution prevention conditions in enforcement settlements are: recurring patterns of violations which are unlikely to be corrected by additional controls; proposed solutions which do not create environmental problems in other media; effluent emissions or discharges for which feasible prevention options exist; and violations involving one or more of the 17 target pollutants in EPA's "33/50" Industrial Toxics Project.

EPA's enforcement program is also implementing the Administrator's goal that 25 percent of EPA's enforcement actions incorporate elements involving more than one environmental medium (e.g., surface water and air). The movement towards a multi-media approach to enforcement is intended to further Agency objectives of greater environmental protection, risk reduction, and pollution prevention, as well as greater deterrence, and greater resource efficiency than a single program/single medium approach can accomplish.

For more information, contact Peter Rosenberg, 202-475-8869.

New York, New Jersey Enforcement Actions Use Pollution Prevention Approach

EPA is incorporating pollution prevention projects into many of its settlements with firms violating Section 313 of the Emergency Planning and Community Right-to-Know Act. A number of recent consent agreements in Region 2 require firms to make "environmentally beneficial expenditures," often exceeding the cost of the proposed penalty, and resulting in more permanent environmental improvements.

Recent examples: EPA Region 2 settled a case with C.H. Thompson in which the company will install a thinner recycling unit to recapture toluene and MEK. Installation of the unit reduces the amount of thinner disposed of by about 80 gallons per month. At both Northern Plastics Corporation and Atlas Plastics, Inc. in New York State, acetone recovery systems are being installed to reduce the amount of acetone used and emitted by the facilities. A solvent recovery system is also being installed at Colorama Laminating and Printing, Inc. in New Jersey. Itran Corporation has agreed to a partial substitution of liquid nitrogen for methylene chloride in its processes that involve removing rubber from metal.

33/50 Challenge

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Aladdin Industries Inc.
I am impressed by your efforts. . . to work together to reduce toxic pollution. Although Aladdin is a small generator of these emissions, we feel an obligation as corporate citizens to reduce any emissions we generate.

The Archer Company
A Division of RJR Nabisco:
We welcome participation in your voluntary initiative and believe the aggressive goals for reduction . . . are worthy of pursuit.

General Dynamics Corporation:
. . . we accept this challenge.

The Boeing Company:
We would like to confirm our acceptance of your challenge to reduce. . . emissions.

Similar letters of enthusiastic support have come in from more than half the nation's Governors.

Of course, we still have a long way to go in reaching out to — and getting responses from — the more than 3,500 companies that report to the Toxics Release Inventory one or more of the 17 chemicals covered by the 33/50 Program. And reduction *commitments* are not the same as actual reductions. The 33/50 Program will carefully track progress towards meeting the 1995 reduction goals, with a particular eye towards evaluating the overall contribution of pollution prevention.

As the 33/50 Program takes shape, we look forward to reporting our progress to you regularly in these pages.

EPA/USDA Grants

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among living organisms, environmental conditions, and farming practices.

The program will also give preference to proposals for projects that involve interdisciplinary cooperation, involvement of both research and educational activities, and cooperation with farmers or grower organizations, non-profit organizations, and private enterprises involved in sustainable agriculture research and education.

Special consideration will also be given to projects in which farmers actively participate in the design and implementation.

Awards will be announced in June. For more information, contact Jim Boland, 202-401-4385, or Jackie Krieger, 202-245-4172.

Great Lakes Pollution Prevention Plan Announced

EPA has announced a pollution prevention action plan for the Great Lakes region, focused on reducing the levels of persistent toxic substances in the Lakes. Holding approximately 20 percent of the world's supply of fresh surface water, the Great Lakes have been termed a "national treasure" by EPA's Administrator, and cleaning up the Great Lakes has been declared one of EPA's top priorities.

EPA is launching four major new initiatives with the Great Lakes states, which address the broad spectrum of pollution prevention opportunities available in the Basin:

1. A public/private initiative with Chrysler, Ford, and General Motors in a basin-wide effort to identify persistent toxics of greatest concern, explore prevention opportunities, and participate in technology transfer forums to share information on prevention techniques and successes.

2. A cooperative effort on the part of EPA, Minnesota, Wisconsin, and Michigan focusing on Lake Superior, the largest of the Great Lakes and the most vulnerable to pollution from toxic substances. The effort will build on and strengthen existing environmental protection programs, monitoring networks, and inspection activities.

3. Pilot programs in pollution prevention for urban non-point sources. EPA will work with New York State and local governments on projects to educate consumers on household hazardous waste and lawn management practices, and in helping small towns to identify and reduce non-point source discharges.

4. EPA and Environment Canada will co-sponsor an International Pollution Prevention Symposium to be held in conjunction with the International Joint Commission meeting in the fall of 1991 to assess progress and establish an agenda for future pollution prevention efforts.

Pollution prevention activities will be targeted by pollutant, source, and geographic area in order to achieve demonstrable environmental benefits. Prime target areas for pollution prevention activities will be Northwest Indiana, the Niagara River, and Milwaukee, Wisconsin. Targeted pollutants will include many of the toxic substances identified in the national 33/50 Program as well as other critical pollutants of concern to each lake. Consistent with the 33/50 Program, the action plan for the Great Lakes also sets as a primary goal, a 33 percent reduction of releases of targeted contaminants into all media by the end of 1992, and a 50 percent reduction by the end of 1995.

EPA also expects to conduct a pollution prevention outreach program — the "Great Lakes Pollution Prevention Challenge" — to all sectors of society. Specifically, in launching this effort, EPA and the states will challenge: industrial generators in the Great Lakes basin; agricultural generators; colleges and universities; federal and state governments; cities, counties, and towns; environmental groups; and individual consumers.

Current Status of Great Lakes

The notorious eutrophication problems of the Great Lakes have been greatly reduced over the last two decades — chiefly through massive spending on sewage treatment which successfully reduced nutrient loadings. However, the presence of persistent toxic substances in Great Lakes waters and sediments remains a thorny problem. Of 43 defined Areas of Concern in the Great Lakes, 41 show serious contamination of sediments with metals and organic compounds.

A cause for continuing concern is the bioaccumulation and biomagnification of toxic risks through the food chain. While concentrations of chemicals measured in Great Lakes water may be below detection limits, because of biomagnification in the food chain, a chemical can accumulate in the tissue of fish and other predators, to astonishingly high levels.

Residents in Great Lakes states are still advised to limit or in some cases avoid consumption of popular sportfishing species, such as lake trout and Great Lakes salmon, due to their accumulation of toxics. A 1989 study by the Conservation Foundation in Washington and the Institute for Research on Public Policy in Ottawa examined animal and wildlife studies conducted over several decades in the Great Lakes and found striking patterns of toxic accumulation, with accompanying health anomalies occurring across a wide range of species, particularly including reproductive and generational effects in animals high in the food chain.

Particularly troublesome is the realization that airborne deposition of pollutants is a a major source of contamination of the Great Lakes. Toxic contaminants can travel hundreds or thousands of miles on air currents; much of the DDT (banned in the United States and Canada) now entering the Great Lakes is believed to come from Central America and Mexico. Airborne deposition indicates the need for national and international solutions to pollution problems.

Recent recommendations to the International Joint Commission point to the use of wildlife health as indicators of the overall health of the Great Lakes ecosystem. In particular, the bald eagle may be a useful indicator species because it sits at the top of the Great Lakes food web and is so sensitive to ecological disturbances. Thus a flourishing bald eagle population around the Great Lakes could signal a restoration of the integrity of the entire ecosystem. □

Building Design

Far left: NRDC headquarters, where ambient light is low and task lights are provided at desks. Photo by Otto Baitz. Left: "Boulevard" at EDF, where each secretarial station has a tree and a glare-free triphosphor street lamp. Photo by H. Durston Saylor.

Nonprofits' New York Offices Showcase Non-Toxic Design

The New York headquarters of the Environmental Defense Fund (EDF) and the Natural Resources Defense Council (NRDC) are two leading examples of designing with the environment in mind.

In renovating the EDF offices, architect William McDonough attempted to get rid of indoor air pollution at its source. He made sure the space had windows that open, refurbished the air conditioning system for maximum ventilation, and provided 30 cubic feet of fresh air per person, per minute, six times the national standard. Plywood and particle board were replaced with solid wood to curb emissions of formaldehyde. Carpets were tacked rather than glued, and beeswax was substituted for polyurethane on office floors.

The NRDC renovation, designed by Kirsten Childs and Randy Croxton of Croxton Collaborative, achieved a high level of energy efficiency. Heating controls are individualized, and sensors measure outside temperatures to make use of cool ambient air instead of air conditioning whenever possible. Windows contain a heat barrier that assists in year-round climate control while allowing large amounts of light to enter.

Both William McDonough Architects and Croxton Collaborative are in New York City.

EPA Document Classifies Indoor Air Pollution Sources

Research by both EPA and the Consumer Product Safety Commission indicates that many building materials and products commonly found in homes and offices may be sources of harmful air pollutants. EPA's Air and Energy Engineering Research laboratory has undertaken an identification project focusing on materials found in homes or offices that are emission sources, indoor combustion sources, outdoor sources, biological sources, and activities which result in pollution of indoor air. The first product is a classification system; chemical data will be added in a report later this fall.
Contact: James White, 919-541-1189.

Biologic's Construction Ideas

Environmentally sympathetic construction ideas are among the many innovations catalogued in David Wann's new book *Biologic* (Johnson Books, Boulder, Colorado, 1990). Mr. Wann is a policy analyst in EPA's Region 8 office in Denver. Ideas reported in the book include the following:

- Ventilation systems built under basement floors to prevent radon from seeping into living areas;
- Housing structures built of aluminum cans and used tires, then plastered over to resemble adobe; and
- Low-toxicity materials, such as silver plumbing solder and magnesium oxide wallboard. Paul Bierman-Lytle, a Connecticut architect who specializes in use of such materials, says: "They have a long life, they are ecologically sound, they don't deplete fossil fuel resources, and they tend to not pollute the environment during their manufacture."

Biologic also describes some of the Solar Energy Research Institute's ideas for energy-efficient control of indoor environments, including humidity-storage devices, dessicant wheels that filter pollutants from the air, and window glazings of various kinds.

Architects' Environmental Resource Guide will be Published as a Subscription Service

The American Institute of Architects (AIA) has announced plans to publish its Environmental Resource Guide (ERG) as a subscription service. Each issue will provide subscribers with factual information on significant environmental impacts of building materials and construction practices.

EPA is supporting preparation of the ERG through a $700,000 three-year grant, funded by the Office of Research and Development and the Pollution Prevention Office.

The ERG will be organized as a desk reference for use by architects, engineers, and other design professionals. Contents will include:

- Brief summaries on specific construction materials, such as aluminum, indicating their impact on natural resources and health as well as the amounts of energy consumed and waste generated during manufacturing or processing;
- Life cycle considerations; and
- Annotated bibliographies.

Full-scale research reports will be available upon request.

"There is a an information vacuum" among the AIA's 56,000 members, said Douglas McCreary Greenwood, ERG Project Director at AIA. "People are eager to be environmentally responsible but lack adequate information to make decisions in this area," he said.

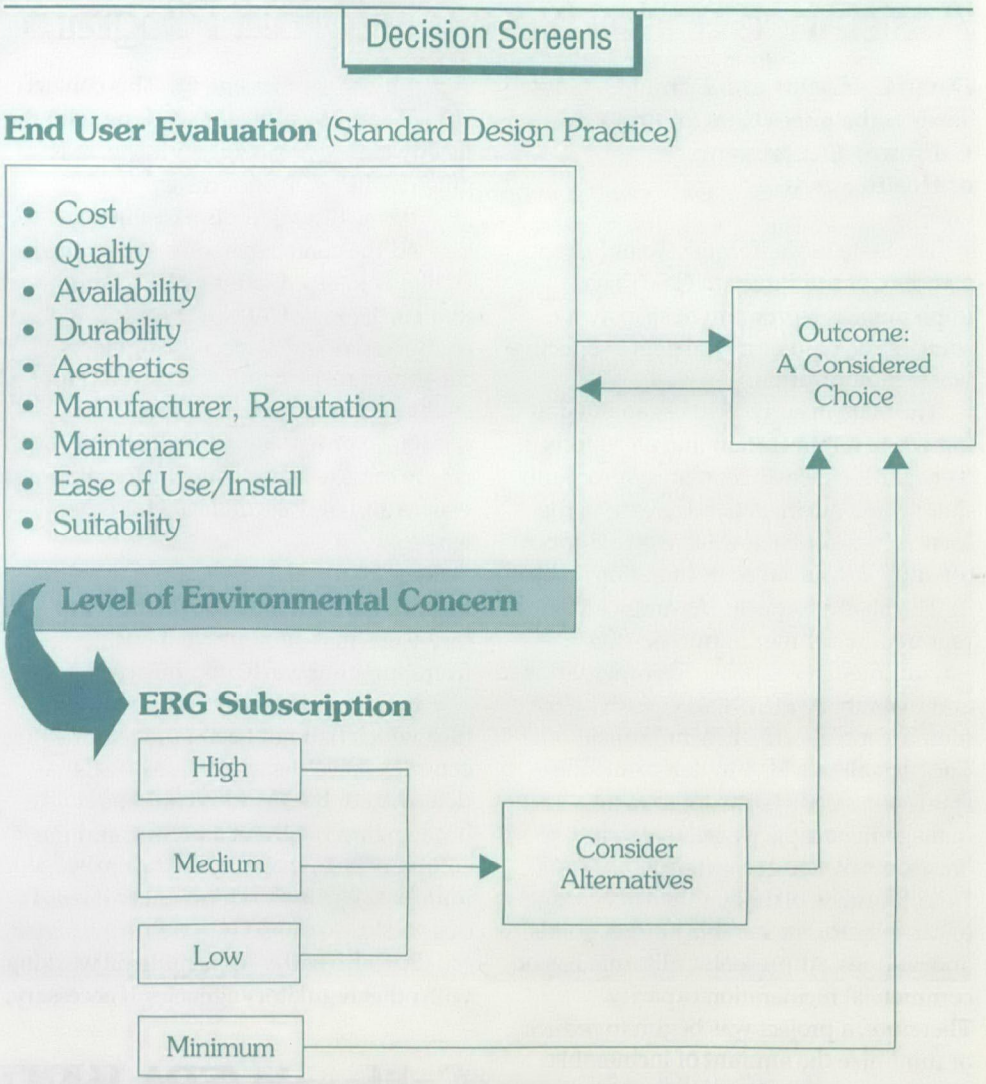
Besides reporting on construction materials, the ERG will summarize current scientific research on topics such as siting, waste, air quality, and energy. Additional features may include regulatory updates and news about environmentally sympathetic products.

Much of the information will be drawn from existing sources. The ERG will meet the need for a presentation format that is useful to the design or construction professional.

"The information we have at hand about environmental impact is either too obscure ('Lab results indicate off-gassing of VOCs in material X at 3500 psi') or so anecdotal ('If it stinks, it stinks!') as to be virtually useless to many architects, or, for that matter, their clients," stated an AIA introduction to the Guide.

The ERG is expected to take several years to publish in its entirety and will continue to be updated as new scientific information becomes available. Eventually, the ERG will contain information about materials in all 16 Construction Specification Institute (CSI) categories (e.g., site work, concrete, masonry) including available alternatives.

ERG publication plans call for both a loose-leaf subscription service and a computer diskette with search and retrieval capabilities.



Adapted from "Making a Difference," an Introduction to the Environmental Resource Guide

A distinctive feature of the ERG will be the presentation of positions held by government agencies, environmental groups, and private industry on the environmental impacts of materials, even when the positions conflict.

To assure accuracy, AIA has enlisted assistance from science advisors and technical experts. The AIA stresses that the ERG will not be "a consensus document," but will be a key step towards "a new ethos for the built environment."

For more information about the ERG, contact the ERG project office at the AIA, 1735 New York Avenue, N.W., Washington, D.C. 20006, Tel: 202-626-7451, Fax: 202-626-7518.

In the States

Firms That Minimize Waste Get Priority Assistance under New California Program

David C. Hartley and Daniel Q. Garza
Toxic Substances Control Program
California Department
of Health Services

The State of California's Toxic Substances Control Program (TSCP) has implemented a program to strip away some of the regulatory barriers to effective waste minimization.

The State in early 1990 began integrating waste minimization into all aspects of its hazardous waste regulatory program, thereby producing a net decrease in the total volume of hazardous waste shipped off-site for disposal or incineration.

The State's Capacity Assurance Plan, required under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), provided a motive for focused waste minimization. The plan allows EPA to determine the status of a state's hazardous waste management capacity relative to its hazardous waste generation.

California's plan identified a shortage of capacity for incinerable liquids, solids, and sludges. At present, California has no commercial incineration capacity. Therefore, a project was begun to reduce or minimize the amount of incinerable wastes requiring off-site treatment or disposal, by integrating waste minimization into all TSCP activities, and also allowing California to comply with its Capacity Assurance Plan.

The project's goal is the reduction of incinerable wastes by 50 percent between 1987 and 1992.

A search of the manifest tracking system was performed to identify the largest generators of incinerable wastes. The project focused on facilities generating greater than 200 tons per year of the targeted incinerable wastes. This resulted in a list of approximately 60 facilities, which comprise the core of the project.

In exchange for signing a nonbinding agreement to participate, facilities were promised a high priority for regulatory, technical, and permit assistance. TSCP has provided a contact person for each signatory of the agreement. This contact person is responsible for working with the facility and providing it with any assistance within their expertise.

If the facility requests assistance beyond the contact person's expertise, the facility is referred to the TSCP's Alternative Technology Division, which is comprised of scientists and engineers capable of researching and developing solutions to complex problems. The assistance provided by TSCP will primarily be for issues involving incinerable wastes and only secondarily for other waste streams.

Regulatory assistance could involve helping facilities to untangle the regulatory webs that often prevent businesses from pursuing waste minimization.

Example: A company had a recycling idea which had not been pursued due to complex recycling regulations. TSCP determined that the idea could be implemented without a permit, and the company is now able to dramatically minimize its off-site shipment of hazardous waste.

TSCP also will assist facilities in working with other regulatory agencies, if necessary, to bring about waste minimization.

Example: TSCP will intercede on behalf of a volunteering facility in dealing with another regulatory agency, e.g., by meeting with a local air management district to try to develop an environmentally sound solution to a hazardous waste problem which crosses media, in this case, air and land.

TSCP also will give top priority to permit requests of facilities which have signed agreements. Currently, a facility desiring to modify its permit to allow implementation of waste minimization might have to wait approximately three to five years to have its permit reviewed. Facilities participating in the project have been promised that their permit applications will be reviewed in a more timely fashion.

TSCP's aggressive attempt to integrate waste minimization into its everyday activities will be evaluated in 1992, when the manifest data submitted by the participating facilities will be compared with the 1987 data to determine if a net reduction has occurred. If the project proves successful, a new waste stream will be selected and the project repeated!

California/EPA WRITE Program. . .

The California/EPA Waste Reduction Innovative Technology Evaluation (WRITE) Program is now in its second year of technically and economically evaluating waste reduction technologies. The EPA WRITE Program is a national research demonstration program designed to evaluate the use of innovative engineering and scientific technologies to reduce the amount and/or toxicity of wastes generated from the manufacture, processing, and use of hazardous materials.

One recently completed WRITE Project evaluated an Advanced Reverse Osmosis System (AROS) to treat and recover Watts nickel sulfate plating bath solution and rinse water at the Hewlett Packard (HP) Facility in Sunnyvale, California. The 5-gpm unit, a ZDR-500, has specially adapted membranes that do not require pH adjustment to neutral, a microprocessor to manage specially adapted reverse osmosis (RO) membranes, and a continuous monitoring system that monitors the influent, permeate, and concentrate for temperature, flow rate, and conductivity.

Procedure

The AROS unit was installed, debugged, and tested in December, 1989 and was operational 210 days in 1990. The plating operation tested with the AROS unit was a Watts nickel plating line consisting of two plating baths followed by a "dirty" rinse tank and a

continued on following page

Photo reprinted with permission of The Daily Breeze © 1990

'Urban Environment' Exhibit To Open in L.A.

The California Museum of Science and Industry in Los Angeles is planning to open an exhibit this year entitled "Our Urban Environment" aimed especially at young people. The objective is to stimulate interest and educate visitors about environmental issues that affect daily life.

Focusing on Los Angeles Basin environmental issues, the exhibit will show the scientific aspects of air quality, solid and liquid waste management, and urban growth. Scientific and social resource management issues will be raised in a way that the museum hopes will assist visitors in making personal and political decisions.

"Our Urban Environment" will include presentations on the environmentally conscious home; wastewater treatment, water quality, water supply and the water cycle; recycling, source reduction and solid waste disposal; industrial use of chemicals, hazardous waste disposal, toxics monitoring and methods of risk assessment; air quality, mobile and stationary sources of air pollution and the atmospheric cycle; community concerns and urban planning; and the connection between local and global concerns.

The first module of the exhibit 'Our Urban Environment' was installed last year. The trash can represents the 4,238 pounds of trash generated per person in Los Angeles County each year, including both residential and commercial/industrial garbage. The trash can has wedges that visitors can pull out to see potentially recyclable trash represented. By turning a crank, they can see the portion of the waste stream that cannot currently be recycled.

Projected opening date for the entire exhibit is late 1991. The exhibit will be in place for at least five years.

. . . Hewlett Packard's Advanced Reverse Osmosis Project *from page 6*

"clean" rinse tank. The rinse water flows countercurrent to the flow of the items being plated. The overflow from the "dirty" rinse tank, 4 to 5 gpm, is the wastewater that becomes the influent to the AROS unit.

Four streams were sampled in October, 1990, according to an EPA approved Quality Assurance Project Plan. The waste streams included: (1) influent to the AROS treatment unit ("dirty" nickel plating rinse), (2) deionized water used as makeup water to the AROS unit, (3) permeate, consisting of deionized water produced by the AROS unit and returned to the "clean" rinse tank, and (4) nickel plating solution concentrate produced by the unit and returned to plating bath #1. Sample analysis included nickel, chloride, sulfates, pH, total dissolved solids, conductivity, color, and total organic carbon.

Results and Conclusions

Hewlett Packard determined that the concentrate consisting of 50 percent nickel plating solution produced by the AROS unit could be returned to plating bath #1. The permeate (deionized water) from the AROS unit was also acceptable for reuse in the "clean" rinse tank.

An economic assessment was performed by comparing the costs of operating the wastewater treatment system and deionized water production operations with owning and operating the AROS unit. The major incremental cost savings resulting from the use of the AROS unit was estimated at $26,250 per year. The annual expenditure for owning and operating the AROS unit system was $9,419. The net annual savings was $16,831. The AROS unit costs $75,000, which represents $63,000 for the unit and $12,000 for making the installation permanent and training of operating personnel. The payback period is 4.4 years.

The final report containing the economic and technical evaluation will be available in July, 1991. For more information contact Lisa M. Brown of the Risk Reduction Engineering Laboratory at (513) 569-7643 or Robert Ludwig of California's Toxic Substances Control Program at (916) 324-2659.

Calendar

Title	Sponsor	Date/Location	Contact
21st Annual BioCycle National Conference	BioCycle Magazine	May 20-22 Philadelphia, PA	Conf. Coordinator 215-967-4135
Plastics Recycling Technology Short Course, Conference	Plastics Institute of America	May 21, 22-23 Washington, DC	Irene Sacks 201-808-5950
New England Environmental Expo	EPA Region 1, others	May 21-23 Boston, MA	800-543-5259 617-489-2302
Environment in the 1990's: A Global Concern	SAMPE	May 21-23 San Diego, CA	Tel: 818-331-0616 Fax: 818-332-8929
North American Recycling '91 Conference	Resource Recycling Magazine, Resource Integration Systems	May 28-29 Orlando, FL	Resource Recycling 503-227-1319
6th Intl. Conference on Used Oil Recovery and Reuse	Association of Petroleum Re-Refiners	May 28-31 San Francisco, CA	APR 716-855-2757
Pollution Prevention: New Opportunities in the 1990's	U.S. EPA	May 29-31 Woods Hole, MA	Dana Duxbury 508-470-3044
World Recycling Conference & Exposition	Recycling Today Magazine	June 4-6 Rosemont, IL	Bob Mignarri 203-852-0500
10th Annual New England Resource Recovery Conf/Expo	New Hampshire Resource Recovery Assn.	June 4-7 Springfield, MA	Theresa Walker 603-224-6996
4th Annual Hazardous Waste Reduction Conference	NYS DEC Business Council of NY State	June 11-12 Albany, NY	NYSDEC 518-457-6072
Waste Management in the Chemical & Petrochemical Industry	Intl. Assn. on Water Pollution Control, Tulane University, IACT	June 17-20 New Orleans, LA	A.J. Englande 504-588-5374

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