CENTER FOR CLIMATE INTEGRITY

Excerpts of key documents cited in **The Fraud of Plastic Recycling**

Prepared by the
Center for Climate Integrity

February 2024

Contents

CCI #896.2 Syracuse University Libraries

AN IMPORTANT MESSA PLASTI

THE PROBLEM:

In recent months a number of infants and small children have died as a result of the misuse of ultra-thin plastic bags, such as those used to protect your clothing after cleaning and laundering. For example, these bags were used as loose, makeshift covers for crib mattresses. The ultra-thin film adhered to the mouth and nose of the infants, causing suffocation. This is a tragic — and unnecessary — price to pay for the convenience of these new bags.

WHAT YOU CAN DO ABOUT IT:

You can use caution and common sense. **Never** use a plastic bag as a makeshift cover in cribs, play pens, baby carriages, for mattresses or upholstery. **Never** give a plastic bag to a child as a plaything. It is not for children. It should be kept out of their reach. **Never** keep a plastic bag after it has served its intended usefulness.

Destroy it: Tear it up . . . or tie it in a knot . . . and throw it away.

WHEN THEY HAVE SE

TEAR THEM UP . . .

OR TIE THEM IN A KNOT LIKE THIS . . .

CCI #896.3

GE TO PARENTS ABOUT C BAGS

A FATAL MISTAKE . . .

This is the worst possible use a mother could make of an ultra-thin plastic bag. Though it might protect the mattress from wetting, it could well lead to a fatal accident.

INVITATION TO DANGER

. . . The wrong thing to do with a plastic film bag . . . While the plastic bag will protect the pillow from perspiration, it exposes the child to the danger of suffocation.

RVED THEIR PURPOSE

AND THROW THEM AWAY.

CCI #896.4

KEEP PLASTIC FILM AWAY FROM CHILDREN

When a garment is ready to be worn, tear off the film covering and discard it, unless it is to be reused for a similar purpose. Just as children are not permitted to play with pills and medicines, keep thin plastic film away from them.

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This talk was the keynote address at the Packaging Institute's 33rd Annual Forum in New York City on October 4, 1971.

It was given by Judd H. Alexander, Vice President, Marketing - General Packaging, American Can Company.

Mr. Alexander has been one of industry's leading spokesman on the subject of solid waste. In this talk he reviews the contribution of packaging to the economy and to the quality of life. He explores public attitudes toward non-returnables; toward so-called "excess packaging"; toward recycling and other facets of the solid waste problem. He outlines the position of the packaging industries in confronting environmental activists and charts a course for future action.

There are those in the environmental movement who see the answers to all the problems of pollution in a turning backward to the simpler times of our ancestors—to the days of the pioneers or even the cavemen. This course, too, has its hazards. Cave dwelling will not be so easy the next time around. The "endangered species" laws will prevent us from wrapping ourselves in the skins of wild animals. Air pollution standards will forbid the use of open fires for warmth. And the population explosion has far outstripped the world supply of caves.

A nostalgic return to the good old days may be pleasant to contemplate but it is impossible to implement. The problems of pollution *must* be solved with the technology and the affluence from which they sprang. The quality of life will be served best when our problems are defined, our alternatives and priorities are established, and our resources are committed to accomplish the job. We all have obligations to fulfill in this regard. But, as packagers, we have some special services to perform.

The public attitude on packaging has changed. In the past year I have attended dozens of public hearings, talked to scores of self-proclaimed environmentalists and read the letters of hundreds more. There is no question that a small minority of sincere, dedicated people now feel that packaging *is* pollution and they are working hard to convince others that this is so.

Broadly speaking, they are right. Packaging is pollution, but so is breathing. Before either can be condemned, we should measure its contributions and evaluate the alternatives.

The young housewife-environmentalist is almost unaware of the "subtle gifts" of packaging. She knows only that "if something isn't done, we are going to be buried in our own solid waste". To prevent this catastrophe she

P.V.C. *does* give off a poison gas when burned. But so does gasoline and that has yet to be banned. The P.V.C. packaging content of our solid waste is less than 15/100 of one percent of collectable waste. The gas and acid given off in burning can be contained by the ordinary water scrubber of a modern incinerator. The hydrochloric acid of P.V.C. so feared by the public, is also produced by burning leather and other garbage and it is contained in solution in every human stomach.

In modern incinerators, properly managed, all plastics can be handled without damage to the equipment or to air quality. In fact, plastics offer a special advantage. Their high caloric content, about one and one-third that of coal, represent an excellent fuel source for efficient burning—or for the production of heat and electricity.

Garbage is already used as a municipal energy source in Paris, Vienna, Milan, Amsterdam, Munich, Montreal, and other major cities and the percentage of plastics in European waste is about double our own.

Recycle plastic packaging? An excellent idea. But let's recycle it into energy. Most of the petroleum consumed in this country is used as energy. A tiny fraction, less than 2%, is turned into plastic. I think it would be false economy to recycle plastics by separation, classification, cleaning, transportation *and* reprocessing when they could have a valuable second use right at the disposal site as an energy source. In this way plastics would have double value compared to gasoline which is used only once.

Burning for energy makes good sense for disposing of the excess paper in our wastes, too. And paper dominates collectable solid waste: 50% by weight and 70% by bulk. The public clamors for recycled paper but they are unaware of these facts:

Trees cannot be saved. They die. If a pulpwood tree is not "cropped" at the peak of its maturity, it begins a slow death shortly thereafter. The United States grows more trees and more board feet of timber each year than is cut and this will be true through the end of the century. A growing forest produces about triple the oxygen of a mature forest. Although paper recycling in the U.S. has dropped from a war-time level of 35% to 19% today, we will still recycle about 60% more paper this year than we did in 1944. If we increase the recycling percentages to World War II levels by 1985, we will still have half again more paper in our waste at that time than we have today and we will still need another answer for paper disposal. For many paper products, virgin fiber produces a product with lower cost, greater strength, better utility and less bulk.

Finally, paper has a caloric value about half as great as coal. But unlike coal it is a non-polluting fuel. Finally, paper is a *replaceable* fuel. For the foreseeable future, energy recovery from paper appears to be more efficient, more economical and more socially valuable than a massive thrust for recycling.

Incidentally, I have seen dozens of front page articles suggesting that recycling is the answer for waste paper. On September 28, when the F.D.A. cited recycled paperboard made from consumer wastes as a health hazard for food packaging, the story was buried on page 27 in the New York Times.

Why is packaging alone of all the materials in solid waste singled out for restrictive legislation? The answer is simple, really. *We* know that packaging composes less than 14% of collectable solid waste. But the consumer will often estimate packaging's share at 40 to 80%. To the housewife, solid waste means her kitchen waste basket. She forgets the piles of newspapers, the old clothes, the garbage at the processing plants and in the office buildings.

CCI #839. 7 (emphasis added)

EXXON CHEMICAL COMPANY

ENVIRONMENTAL COMPENDIUM

Table of Contents

EAHHS050
3/12/90

I. EXTERNAL INVOLVEMENT - Continued

We have provided financial support to the Keystone Center, a well-known concensus building group, for over eight years and are represented on the Keystone Board of Trustees and Industry Advisory Committee.

6. CHEMICAL INDUSTRY INSTITUTE OF TOXOCOLOGY

In 1974 Exxon Chemical and 7 other chemical companies established the Chemical Industry Institute of Toxicology (CIIT) in Research Triangle, North Carolina. During the last 15 years CIIT has established an international reputation as a unique center of toxicologic science now actively supported by 47 companies. CIIT is a not-for-profit institute with an independent charter whose aim is to provide highest quality "science in the public interest." The Institute's specific mission is to provide an improved scientific basis for understanding and assessing potential adverse effects of chemicals and consumer products on human health. Work at CIIT focuses on the implications of molecular, cellular and animal toxicity data for human health and disease. Such work is critical in elucidating potential human health risks from both occupational and environmental exposures, and, provides the basis for species extrapolations used in product safety evaluations.

7. THE COUNCIL FOR SOLID WASTE SOLUTIONS

In 1988, nine major plastics producers, including Exxon Chemical, established a new organization within the Society of the Plastics Industry to deal with the issues of plastics in the environment. This organization, The Council for Solid Waste Solutions, now has 24 members and a budget of about $13M per year.

The Council's principal mission is to offer long-term solutions to the nation's solid-waste problems, which include the sound use and disposal of plastics. Their activities include working with federal and state legislators and regulatory agencies, establishing broad-based communication programs for the public, and developing technology to encourage plastics recycling, waste-to-energy incineration, and modern landfilling. The Council is active in shaping responsible legislation at local, state and federal levels, and is involved in several demonstration projects of plastics recycling.

EAHHS050
3/12/90

I. EXTERNAL INVOLVEMENT - Continued

8. THE PLASTICS RECYCLING FOUNDATION

Exxon Chemical is directorate member of the Plastics Recycling Foundation which was formed in 1985 to undertake research on all aspects of plastics recycling. The Foundation has over 50 members and a budget of more than $1M per year. Its principal facilities are located at Rutgers University where it is associated with the Center for Plastics Recycling. Their combined funding is about $3.5M per year.

The PRF is currently doing work on collection of plastics for recovery, sorting plastics, reclaiming resins, and manufacturing articles from mixed recovered resins. The Foundation officers are frequent speakers at conferences on solid-waste management.

9. HOUSTON REGIONAL MONITORING CORPORATION

Exxon Chemical is actively involved in addressing air quality issues in the Houston area through its membership and participation in the non-profit Houston Regional Monitoring Corporation (HRM).

Formed in 1980, HRM consists of a cooperative effort of over 40 companies located in East Harris County and West Chambers County. Its underlying goal: to provide member firms with accurate ambient air quality measurements and technical data for a better understanding of the air quality in the Houston Ship Channel area.

The HRM concept was developed by the Environmental Committee of the Houston Chamber of Commerce, but HRM is not a part of the Chamber or any other business or industrial organization. HRM's officers and directors are employees of its participating companies, while HRM has a contract with an independent Environmental Protection Agency (EPA)-approved consultant, Radian Corporation, to conduct all monitoring and special study programs.

The corporation has designed and developed a 900-square mile air quality monitoring network and spends, through member company funding, more than $1 million annually to operate its systems. Each of HRM's eight currently active monitoring stations is

EAHHS050
3/12/90

The Society f the
Plastics Industry, Inc.

605 14th Street, N.W.
7th Floor
Washington, D.C. 20005
(202) 628-0270

December 20, 1984

TO: New Jersey Task Force
State Government Affairs Committee

FM: Roger Bernstein

RE: New Jersey's Mandatory Recycling Bill

The broad coalition (New Jersey Recycling Forum) of municipal and county solid waste officials, recyclers, waste haulers, materials industry repr sentatives, State administrators from the Office of Recycling and Department of Environmental Protection, and bill drafters met for seven hours on December 18 to finalize recommended provisions of the DEP's amendments to the State's mandatory recycling bill.

Three proposed provisions which came up for discussion and vote in the Recycling Advisory Committee session had a direct bearing on plastic packaging:

1. Mary Sheil, Director of the Office of Recycling, proposed that part of the legislation call for a sales tax exemption for products packaged in containers consisting of 50 percent or more recycled material (post-consumer). This proposal would, in my view, discriminate against plastic packaging which isn't recycled back into its original form and which may not achieve this percentage in the near future. We presented this argument. Others in the coalition raised questions on the implementation and enforcement problems with this proposed provision. Due to a lack of support, it was eliminated from the coalition's guidelines for legislation.

2. The Office of Recycling also proposed that all plastic and metal beverage and food containers sold in New Jersey be marked as to composition and that all beverage containers be composed of a uniform material to enhance recycling. This provision was voted down in a earlier steering committee meeting and the full Advisory Committee of the Forum concurred on December 18 on the basis of impracticality.

3. Specific ultimatums calling for a ban on PVC packaging, and a deposit on other plastic packaging, if a viable recycling system is not in place by July 1986, were amended by the steering committee over the objections of the Office of Recycling to read: The industry and the State Office of Recycling shall inv stigate alternative methods for the collection, processing and recycling of tires and plastic containers including the imposition of deposits and shall make recommendations to the legislature by July 1986. This language passed on a 11-7 vote.

TEN 2823

TEN 42,154,48

Whil we were able to deflect some harsh, restrictive languag singling out plastic as a difficult material to collect and recycle, there is no question that the State of New Jersey must see substantial short-term progress in the recycling of plastic containers or else punitive legislation with full backing of the Stat will attack the problem head-on. As it is, the bill to be introduced in 1985 by the DEP should reflect the above statement of committment of our industry to move forward in this area.

Bob Donovan of Owens-Illinois has been instrumental in defusing some of the anti-plastics language and our discussion of the Plastic Recycling Foundation is viewed as an encouraging sign by those responsible for solving the State's landfill crisis. But the mandate to do much more in this arena remains, specially since aluminum is the yardstick by which all packaging material is being judged by State officials and environmentalists.

cc: L. Freeman
F. Corbin
J. Lawrence
J. Heckman
SPI Lobbyists
SPI Section Managers

TEN 2824

CCI #4147.2 (emphasis added)

STANFORD RESEARCH INSTITUTE
Menlo Park, California 94025 · U.S.A.

April 1973

THE PLASTICS INDUSTRY IN THE YEAR 2000

By: R. L. GLAUZ, Jr.
A. G. KRIDL
R. H. SCHWAAR
S. L. SODER

Prepared for:

THE SOCIETY OF THE PLASTICS INDUSTRY, INC.
NEW YORK, NEW YORK

THE SOCIETY OF PLASTICS ENGINEERS
GREENWICH, CONNECTICUT

The statements, findings, and conclusions in this report are those of Stanford Research Institute and do not necessarily reflect the views of the Society of the Plastics Industry.

degradation and premature initiation of degradation are undesirable. In fact, many years of research effort have been spent to develop additives that enhance the stability of plastics in such end-uses.

The principal causes of degrading of plastics materials are sunlight, temperature, moisture, chemical constituents of the air, and microorganisms. To date, suitable degradation rates have been obtained by activating an additive in the plastic material with ultraviolet radiation from sunlight. This action makes polymer degradable; it is then decomposed by oxygen in the air. Unfortunately, waste plastics are not necessarily exposed to sunlight before disposal. Rates of decomposition that have been attained through the use of microorganisms in conditions such as would exist underground appear to be too low to be effective. The possible biological consequences of widespread, uncontrolled degradation in this way need to be assessed.

The desirability of degradation of plastic packaging items is controversial, particularly for waste above ground. It can be argued that if all plastic materials were degradable, plastic litter might well increase because people would know that it would eventually decompose. The environmental impact of the plastics powder that could result from degradation is also not understood. Techniques that recover some economic value while solving the disposal problem are more likely long-term solutions.

Post-consumer Recycling

When plastics leave fabrication points, they are almost never recovered. There is no recovery from obsolete products. Fabricators know that a degradation of resin properties and performance occurs during the initial fabrication, through aging, and in any reclamation process. As a result they distrust the uniformity of reclaimed plastics and are generally unwilling to risk adding another variable to their conversion processes. However, the technology for purification and upgrading of contaminated, degraded, and colored plastics is now being developed.

Municipal sources of plastic waste (i.e., finished plastic products discarded after use) contribute the largest portion of plastics that have to be disposed of. Most of these are packaging materials. Recycling of plastics from these sources poses the greatest challenge since, there are no effective market mechanisms for trade in contaminated, mixed plastics. Sorting by the homeowner over any sufficiently practical period of time has been shown to be infeasible. Techniques for separating plastics from

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The Vinyl Institute
Solid Waste Fact Sheet
Draft -- 7/18/86

The Solid Waste Dilemma

Every year, Americans generate over 141 million tons of garbage or "municipal solid waste." That's more than 1,240 pounds for every man, woman and child. Currently, over 90% of this municipal solid waste -- or MSW -- is disposed of in landfills. Many cities, however, are facing a landfill crisis as the number of suitable sites decreases and opposition from nearby residents increases. New York City, for instance, estimates that its current landfill space will be totally depleted by the year 2000.

If all the garbage brought to U.S. landfills every year were collected in one location, it would cover an area of one square mile and reach almost as high as the Statue of Liberty.

Recycle symbol

Additionally, MSW managers now realize that landfilling also squanders a valuable resource: the potential material and energy recoverable from landfill products such as paper, yard wastes and plastics. As an alternative, many municipalities now ar turning to recycling and incineration as better ways to manage the solid waste dilemma.

CTL026354

Two Alternatives: Recycling and Resource Recovery

Recycling is simply a way of salvaging the reusable content from potential garbage and reprocessing it for further use. Recycling has been used for years to extend the useful life of certain paper products like newspapers, and also helped the aluminum cans gain the lion's share of the beverage container market. Success in these areas has led to recycling programs for newer products — most notably PET (polyethylene terephthalate) two-liter soda bottles. Nevertheless, recycling cannot be considered a permanent solid waste solution, as it merely prolongs the time until an item is disposed of. At that point, recycled products also become MSW components.

Incineration symbol

The practice of incinerating or burning solid waste to recover energy is really another form of recycling, with heat or light being the final product rather than reprocessed material. Incineration has been used in the United States since 1885 to process MSW. While early incinerators often were blamed for generating dust and foul odors, state-of-the-art installations now

CCI #4568.2 (emphasis added)

From clear to opaque, rigid to flexible, from simple "plastic wrap" to sophisticated plastic "cans," plastics are the package designers -- and the package user's -- choice.

italics
bold

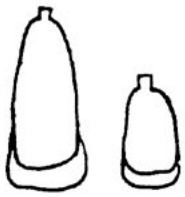
Recycling: Why It Works, Why It Doesn't

Recycle Markets Must Exist

A key to the success of recycling programs is the existence of markets and uses for recycled materials. Although many products— and virtually all plastics — can be recycled, purity and quality demands set for many applications preclude the use of recycled material. The Food and Drug Administration, for instance, prohibits the use of recycled material in food-contact applications.

PET Bottles:

Available recycled material
Available recycled material markets



In many cases, supply far outstrips demand for recycled product.

For those applications where recycled materials can be used, supply frequently outstrips demand, creating the need to stor indefinitely those items collected for recycling.

CTL026358

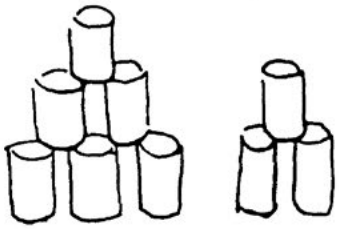
The plastic package of the future will be a composite of several different materials.

Source Separation Required

Recycling also requires "source separation," the process of sorting MSW components by type of material. Although this can be done relatively easily for one-material products like aluminum cans and one-gallon polyethylene milk jugs, the new trend in packaging is toward "composites" — containers made up of several different materials. Composite packaging is becoming more and more popular because it allows container designers to create lightweight, easty-to-handle packaging while maintaining or improving product shelf life. So-called "barrier" packages like the plastic ketchup bottle — with one or more materials forming the wall of a container and another the wall liner — are good examples of advanced composite packaging, but even the simplest package may include a cap of one material, a carrying handle of another, with the container itself being a third. Thus, efforts to simplify source separation by labeling containers as to their material makeup — a solution growing in popularity with regulators — are of limited practicality.

CTL026359

No. of Al cans produced
No. of Al cans recycled



Even the most successful recycling programs fall short of processing all available product.

Finally, source separation faces consumer resistance and increases handling costs for municipalities that institute "post-consumer" sorting of MSW components. Consequently, despite markets for the recycled material, only 55% of all aluminum cans are recycled, only 20% of PET bottles.

Incineration: MSW Management That Makes Sense for Plastics

Flow diagram:

incineration process

One ton of MSW will produce 9 million BTU's — enough to ...

Unlike other components of the waste stream whose useful lives are best extended by recycling, many plastics contribute the most to resource conservation when they are burned for their energy content. A pound of plastic, for instance, will produce 12,000 BTU's when properly incinerated — roughly the equivalent of a pound of coal. Plastics, however, are not the only products that can be burned to produce energy. Almost anything that burns produces BTU's, even grass clippings. Moreover, even the most successful recycling program eventually produces items that can be reprocessed no further. If these items are burnable, they too become candidates for incineration and energy recovery. In a sense, incineration

CTL026360

ACHIEVING MARKET EXPANSION THROUGH PLASTICS RECYCLING

The Biscayne Bay Marriott
Miami, Florida
September 25 & 26

Sponsored by:
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JACK MILGROM

AN OVERVIEW OF OPTIONS FOR DISPOSAL OF VINYL PLASTICS IN MUNICIPAL SOLID WASTE

Dr. Roy T. Gottesman, Executive Director
The Vinyl Institute, Wayne, New Jersey

Presentation at Institute For International Research Conference On "Achieving Market Expansion Through Plastics Recycling"

September 26, 1989

Vinyl plastics, or PVC represent the second-largest selling thermoplastic in the United States with production last year at 8.35 billion pounds. Consumption of PVC in its various applications amounted to 8.26 billion pounds and the compound growth rate for this plastic has been approximately 4.4% over the past 10 years. The largest uses of PVC are in building and construction, where some 62% of product is consumed. The largest use is that in pipes and fittings where the growth has been at a rate of 4.7% per year. Largely, vinyl is used in applications where it does not reappear in the municipal waste stream for many years. This includes such permanent uses as pipe fittings, drain waste and vent piping, siding, windows, wall coverings, louver drapes and leaders and gutters.

The use of vinyl in disposal products, such as packaging has been relatively unchanged over the past 6 years, and is in the area of 600 million pounds per year. This includes rigid bottles used in such applications as the packaging of non-carbonated water, oil, peanut butter, window washing fluid and automotive products. In addition, flexible vinyl film has been used in meat wrap for many years.

While vinyl packaging material is an insignificant contributor to the solid waste stream, the major manufacturers of vinyl resins have embarked on a multi-faceted program to develop information on alternative methods for the safe disposal of PVC in the waste stream. This work has been carried out in answer to the concerns of legislators and regulators, and at the same time, to develop practical information concerning the recovery of vinyl plastics.

Without considering the make-up of the municipal solid waste stream, a hierarchy of options can be established for managing solid waste. Arranged in an order of decreasing environmental acceptability, these are:

1. Source reduction and product bans.
2. The reuse of packaging or shipping containers
3. Recycling
4. Incineration with resource recovery.
5. Landfilling

Source reduction or product bans are voluntary marketplace-driven activities or may be mandated. There is no real benefit in terms of solid waste management, and as a matter of fact, there may be some negatives if the replacement material consumes a greater volume of space in a landfill, or if it is not itself, recyclable. The reuse of packaging or shipping containers is a fairly old practice, and, assuming that the container can be properly cleaned, so as to avoid product contamination, there is a measurable advantage for reuse. Ultimately, however, the container will have to be disposed of in an environmentally-satisfactory manner, as it may no longer be usable, due to damages, cracks or leaks.

This presentation will largely concern itself with information on the recycling of vinyl plastics. There are some key considerations to be made when considering recycling including:

1. If an individual plastic is to be recovered, separation of the plastic containers, and sortation either at the source or a material recovery facility is required.

2. Unless the package is easily identifiable because of its use, i.e., soda bottles or milk containers, some type of container coding is needed, since a large variety of plastics are used in packaging.

3. Flexible packaging is very difficult to recover, as it requires washing or clean-up, separation and some form of densification.

4. Multi-layer composite packaging results in many different plastics in a single package and technology does not now exist for separating these components.

5. There is generally a disparity between the availability of recycled material and the amount needed for second generation products.

6. Second generation products should have a longer life than the original disposable packaging material.

7. Recycling cannot go on indefinitely, and does not solve the solid waste problem.

LOHR

MODERN PLASTICS INDUSTRY FORUM

Turn Waste Into Profits:
An Integrated Approach to Plastics Management

James E. Lohr
Technology Manager, Polymer Recycling
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Wilmington, DE 19805

New Imperatives and Priorities in Plastics Waste Management

Plastics Waste Management: Keeping the Options Open

April 6-7, 1992

The Omni Shoreham Hotel
Washington, DC

It is no secret that the quantitative goals industry originally set for itself for economically recycling plastic containers extracted from municipal waste streams were extremely ambitious. There were, however, valid reasons for adopting these "stretch" goals. To begin with, they essentially ratified the realities of society's expectations for the degree to which plastics wastes required management. Additionally, the adoption of "stretch" goals was intended to stimulate technological innovations in plastics waste management and, finally, to be indicative of industry's acceptance of responsibility for delivering acceptable solutions.

The goals have proven to be an even greater "stretch" than originally anticipated. What we are now realizing is that the straightforward, relatively simple process sequence - collect, separate, sort, grind, clean, and refabricate - can have utility recycling a significant portion of the plastics waste stream, but does not appear to be broadly applicable for plastics waste management. So far, although low in capital intensity, this process has performed with marginal economics and yielded a large fraction of recycled material that is suitable only for lower value end uses. New innovations in advanced sorting technologies, for example, will reduce but not eliminate these problems.

What is the way out of this dilemma? I cannot answer that question in detail, but three general requirements of

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CCI #889.8 (emphasis added)

an improved, more comprehensive solution are beginning to emerge.

First, our industry believes it will remain important to recycle a significant part of the plastics packaging fraction of municipal waste streams. The existing plastics waste recycling industry infrastructure must mature, expand, strengthen its technology, and establish itself on a firmer, more sustainable economic base.

Second, society expects plastics to be recycled via processes that permit their reuse at the highest practical levels in their value chain. Technology and economics will dictate the limits of this objective for different polymer types. Nevertheless, retaining value will become an increasingly important consideration when selecting future recycle process technology options.

Third, our industry's objective is to recycle a much larger fraction of the plastics waste stream than that represented by bottles in municipal wastes. The direct implication of this requirement is that an increasing variety of plastics will be involved in recycle processes. This may add special problems in economically collecting these wastes, depending on their original end uses.

Meeting these requirements and objectives requires improved technology and the development of more technical options directed toward specific parts of the plastics waste

stream. It is this essential need for more and diverse technical options to adequately manage the plastics waste stream that makes it counterproductive to prematurely eliminate any process that extracts some value and does not impact the environment in some other unacceptable way.

Some newer technical options are already emerging. Several companies have announced plans to recycle plastics by depolymerization to monomer and subsequent repolymerization. Most of these processes are not fully developed or operating on an economic scale. Many of them tend to be considerably more investment intensive than the conventional recycling infrastructure. Unfortunately, this incomplete development status, the consequent economic and technological uncertainty, and higher capital requirements could work to inhibit rapid implementation.

Because of - or perhaps in spite of - its lack of understanding, the public is impatient with a perceived lack of progress in managing plastics wastes. The risk in this situation is that impatience could be translated into public policy without due consideration for the requirements of optimum solutions to plastics waste management.

Evidence of this can already be found, for example, in proposed local regulations that would ban or limit energy recovery as a tool for managing plastics waste. These initiatives reflect the views of some who see first-time

plastics recycle via energy recovery as incompatible with society's contemporary values regarding material reuse. Misconceptions about the safe combustion of plastics - worries about harmful emissions, Clean Air Act violations, contributions to global warming, and the like - may also influence localities to oppose energy recovery strategies.

Unfortunately, a ban is a very blunt instrument. When it removes a potentially useful technology, the ability to devise a comprehensive system of plastics waste management is restricted. Energy recovery may in fact represent the most economically viable option for extracting value from some portions of the plastics waste stream. It could also turn out that energy recovery is the only way to get at the residual value of plastics that have already seen one or more higher value uses further up an integrated plastics waste management system.

Today, widespread public discussion of these complex matters has hardly begun. It remains in many respects uninformed. The public must be effectively educated on the role plastics play in maintaining our living standards and the technical options available for creating an integrated plastics waste management system. This education must occur in a way that enriches the public debate and drives for rapid progress, but not on a time scale that only permits suboptimal solutions.

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CCI #889.11 (emphasis added)

PLASTICS RECYCLING: PROBLEMS AND POSSIBILITIES

HEARING

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENT AND EMPLOYMENT

OF THE

COMMITTEE ON SMALL BUSINESS HOUSE OF REPRESENTATIVES

ONE HUNDRED SECOND CONGRESS

SECOND SESSION

WASHINGTON, DC, FEBRUARY 25, 1992

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H721-49

About this time it evolved that some materials were nobler than others due to "recyclability." If a product wasn't "recyclable," it would simply have to be replaced with something that was. The rush to demonstrate environmental purity was on, and pressure for recycling of all articles grew. The call was to recycle or be banned.

The plastics industry was made to feel the pressure acutely. Programs for each plastic, and in many cases each grade of plastic, had to be devised and technically proven. Bottles had to be sorted, cleaned, purified and made into pellets for processors. By 1989, green marketing drove demand; the world had to be mobilized to supply.

The answer to supply was curbside collection. The first plastic bottles collected at large scale were those most recognizable by their shapes: milk and soft drink bottles. To demonstrate environmental purity, programs were devised for other applications, and some collection of all plastic bottles began.

When these programs began to supplant volunteer drop-off sites, however, the costs of paying people to collect, move, sort and quality control recyclables appeared on the radar screen for the first time. Municipalities asked "Is this worth

suited for its job, but each is different. Bottle resin and basecup resin must not be mixed if value is to be preserved.

There are many problems associated with recycling plastics. Some are technical, like the need for explicit sorting or washing off the myriad of labels, adhesives and food contaminants. Some are logistical, like collection and transportation. At this time, however, the largest problem is selling the final product.

How did a decent very small business in the early 1980's become a rapidly growing business in crisis in the early 1990's? The answer is that despite the noble nature of the enterprise, recycled plastics (and other materials for that matter) are commodities just like their virgin counterparts. The economic "soft landing" was a myth, and so was the theory that demand for recycle is unaffected by the business cycle.

The commodity markets into which plastics go have never been known for price stability. Green marketing might sell recycled resins at ten percent above virgin prices but will not at fifty percent. People noticed that the quality of virgin material was better--and it cost less. Lucrative markets for recycle stopped

growing or contracted, replaced by low cost virgin resin. The materials glut resulted.

In the industry there is an adage: a cycle consists of two good years and seven bad years. The cycle is about to turn when producers announce new capacity, virtually assuring future oversupply and low prices. Most recyclers entered the business during two of the best years ever seen in the plastics industry. Those days are long gone for producers of virgin or recyclers.

On the virgin side, at the bottom of the cycle, the industry purges itself (although reluctantly) by closing high-cost capacity that has been made obsolete by more efficient capacity funded by the previous boom. The system lurches along between under- and oversupply, but has managed consistently to improve quality for the past fifty years. As proof, the US plastics industry still has a net trade surplus: even with Japan, Inc.

Despite understanding the dynamics of our business cycle, governments have volunteered recently to help with the recycle market problems by mandating recycling rates and/or use of recycled materials in packaging applications. Frankly, when I speak as a recycler, the prospect of having the government

STAFF MTG
8/24/92

GOAL: PLAN

Nothing has changed

Book has been put together

PET INDUSTRY –

PLAN does not take into account the problems that custom PET has created

25% Goal – it will be difficult to reach

Mix more difficult than all bottles but to build machines that make three-layer bottles would be as/to expensive

Value of the product is lower than cost to prod.

Prod Stew. Steer Cmte –
Adv. TF
OTF –

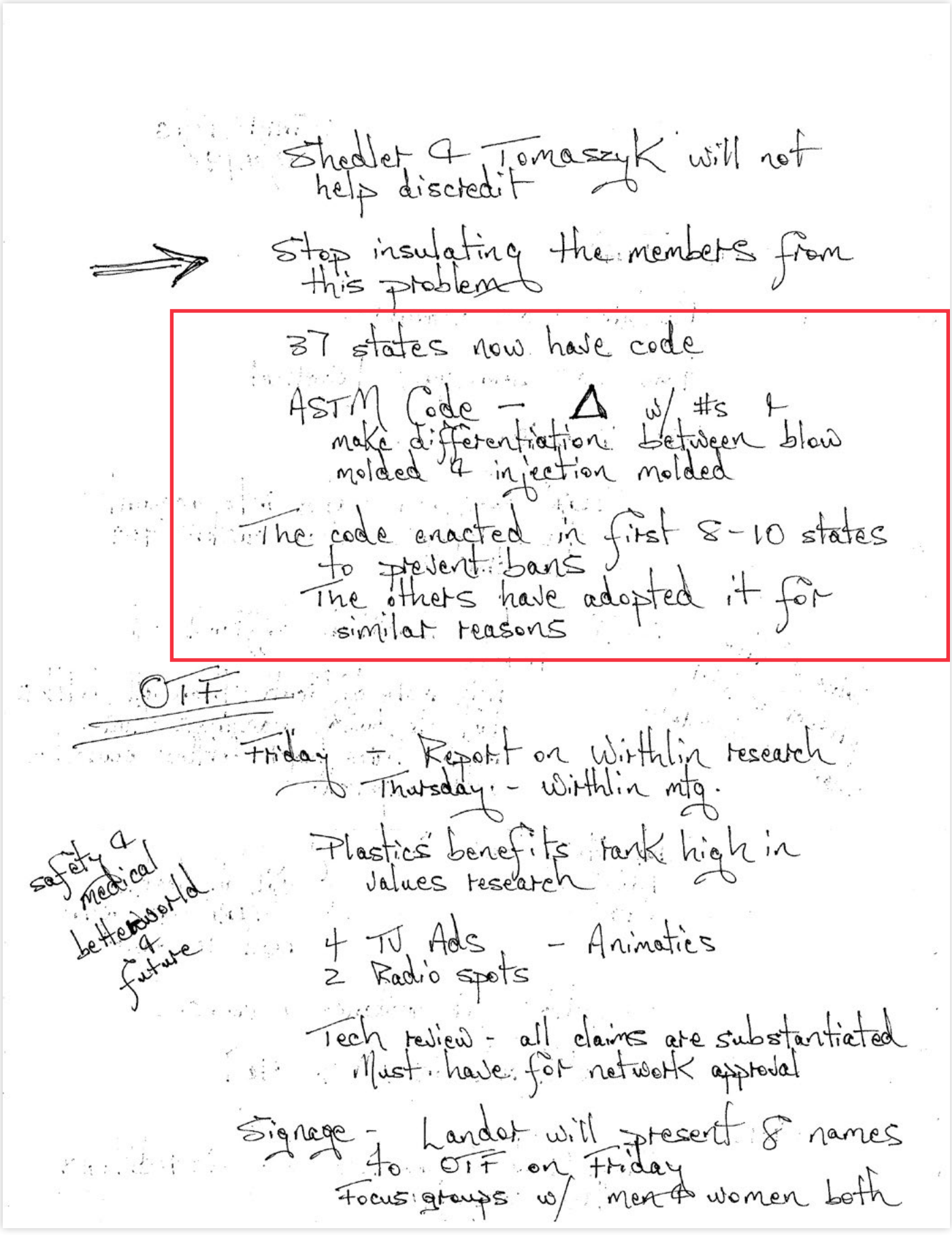
} Will all look @ PLAN Goal w/in next 10 days

Asking for guidance & counsel

Will make input to draft

CNN –

Stop flood of bottles by discrediting the campaign



Shedlet & Tomaszyk will not help discredit

→ Stop insulating the members from this problem

37 states now have code

ASTM Code – △ w/ #s & make differentiation between blow molded & injection molded

The code enacted in first 8-10 states to prevent bans
The others have adopted it for similar reasons

OIF

Friday – Report on Withlin research
Thursday – Withlin mtg.

Plastics benefits rank high in values research

safety & medical
better world & future

4 TV Ads – Animatics
2 Radio spots

Tech review – all claims are substantiated
Must have for network approval

Signage – Landor will present 8 names to OIF on Friday
Focus groups w/ men & women both

CCI #14.55 (emphasis added)

NOTES ① 1/12/94

Meeting w/ APME members - Marcel Daniëls
European Develop. - (Now called the European Union)
APME through the VKE put out press release stating more realistic goals on pkging
bothered by this because they had made a commitment to reach these higher goals
Green Dot has been baled out of bankruptcy twice
DSD has been looking for other countries to process plastics
A copy of report by German Min. on WTE facilities becoming dioxin sinks instead of sources
EEWC - European Waste Comm Energy from
Author in Europe on clean energy
from WTE
Looking for # 200K initially
We need to get out at the grass roots level & do guerilla warfare like our adversaries
At EPA DOC officials can act as advocates for industry positions by telling OMB that they have problems w/ certain EPA program
RCRA - Probably not going to get attention
SUPERFUND will - 25% of funds

CCI #79.1 (emphasis added)

BACKGROUND STATEMENT

DRAFT REGULATION ESTABLISHING STANDARDS
FOR PLASTIC BOTTLE CODING

In order to facilitate the separation of plastic containers for the purposes of recycling, subsection 15(a) of Public Act 88-231 requires all 16-ounce or larger plastic bottles sold in Connecticut as of January 1, 1990 to be coded to indicate the composition material of the bottle. Subsection 15(b) requires the Commissioner of Environmental Protection to adopt a regulation establishing the code and providing consumers with an explanation of the code. The attached draft regulation establishes standards for identification codes indicating the plastic material in bottles and provides for information dissemination through municipal recycling programs.

RELATIONSHIP TO THE VOLUNTARY SPI CODE

In developing this regulation, the Department has proposed a coding system identical to the voluntary coding system proposed by the Society for Plastics Industry (SPI) with two exceptions. The first relates to establishing a maximum contamination level and is supported by plastics recyclers. The second relates to the use of a recycling symbol to set off the code from other markings on the bottom of plastic containers. SPI has proposed the use of such a symbol as part of its voluntary code. The Department opposes the use of such a symbol. Both positions are presented below in an effort to elicit public comment.

The Voluntary SPI Code

The voluntary SPI code is as follows:

Polyethylene Terephthalate (PET)	"1 - PETE"
High Density Polyethylene	"2 - HDPE"
Vinyl/Polyvinyl Chloride (PVC)	"3 - V"
Low Density Polyethylene	"4 - LDPE"
Polypropylene	"5 - PP"
Polystyrene	"6 - PS"
All other resins and layered multi-material containers	"7-Other"

Each number would be enclosed by a three-arrow triangular recycling symbol with the letter code appearing directly below the symbol.

A 2% Maximum Contamination Level

The SPI code proposes that containers will be coded by predominant resin type. After discussions with SPI and major recyclers of post-consumer plastic, the Department decided that a maximum contamination standard should be established in the proposed regulation to discourage mixed-media packaging and to assure the purchasers of post-consumer containers of a consistent product which meets their specifications. (Mixed media bottles

TI28310209

are those having multiple parts composed of different resins, those made from multi-resin mixes, and those composed of multiple layers with adhesives). The proposed regulation consequently provides for a maximum contamination rate of 2% by weight of the total mass of the container for material codes 1-6. Any container which does not meet this specification and containers made of single resins other than those encompassed by the coding system would be labeled "Other - 7." An exception to this standard is made in the proposed regulations for PETE (PET) soft drink bottles with affixed HDPE base cups. These containers would be labeled as "1-PETE" in accordance with the SPI code because an adequate system already exists for recycling these bi-resin soft drink bottles.

The Use of a Recycling Symbol to Set Off the Code

The SPI voluntary code includes a three-arrow symbol commonly used to denote recyclable material and products made from recycled material. The industry asserts that the three-arrow triangular recycling symbol is needed in conjunction with this coding system to clearly differentiate the material code from other bottle codes (eg, bar codes, batch codes, etc.). The Department opposes the use of a recycling symbol because the use of such a common symbol will create confusion and encourage the flow of nonrecyclable material through the recycling system.

SPI Position: (1) The recycling code is meant to facilitate recycling by assisting intermediate processors and manufacturers of products which utilize post-consumer plastic in distinguishing the content of post-consumer plastic. (2) The three-arrow recycling symbol is necessary to set off the code from other codes which appear on the bottom of plastic containers. (3) The three-arrow symbol is not meant to indicate either that the particular container is recyclable or is composed of recycled material, but rather that the code is for the purposes of recycling. (4) The use of any other symbol to set off the code could infringe on trademark rights and will conflict with the multitude of symbols which are already in use. (5) Several states have already adopted the SPI code and several more are in the process of adopting it, so the country is already moving toward a uniform national code.

DEP Position: While the Department supports the use of a uniform national code for identifying resins used in plastic containers, it opposes the use of a recycling symbol to set off the code because it would lead to confusion which would compromise recycling programs and waste reduction efforts. It is the Department's opinion that the code will be utilized primarily by householders making decisions about what to buy and what to place in a recycling container rather than by intermediate processors or end markets. The latter readily recognize the various resin types through constant exposure to bottle types and brand names. If a symbol is needed to set off the code, a box, circle or plain triangle would be an appropriate choice.

1. The recycling symbol proposed suggests that the plastic containers are made of recycled material or that they are recyclable. This is, in practice, generally not the case. The fact that a technology may exist to recycle a particular container does not guarantee that it is economically recyclable.

TI28310210

Source: https://www.industrydocuments.ucsf.edu/docs/zggm0031

CCI #3163.2 (emphasis added)

Economic recyclability depends on the cost of municipal collection systems, intermediate processing and the availability of regional markets for post-consumer plastic, not simply on available technology. Because plastic is light and voluminous, the collection, processing, and shipping costs associated with recycling post-consumer plastic are likely to be high relative to other recyclable materials. (The plastics industry has acknowledged that collection costs are one of the greatest stumbling blocks to plastics recycling at present and is working to develop more economical collection systems.) It is therefore essential to ensure that collection and processing systems are not burdened with a flow of material which is not economically recyclable. If householders see a recycling symbol on plastic containers which are not recyclable through their local program, nonrecyclable plastic containers may be placed in recycling collection bins, hauled to the IPC, hand sorted at the IPC, discarded as waste and finally hauled to a disposal facility. This will have a severe impact on the already marginal economic feasibility of recycling plastics as well as on recycling programs as a whole.

Markets for post-consumer plastic are presently regional in nature and largely limited to H.D.P.E. and P.E.T. A technology for producing plastic lumber from mixed plastics is being tried on an experimental basis in a few locations. It is unlikely that there will be consistency among recycling programs across the country or even within Connecticut in the near term. The use of the recycling symbol would not therefore be uniformly appropriate.

Careful use of the proposed code for plastic containers in conjunction with specifications which identify maximum contamination levels for each code will not only facilitate recycling programs, but will also promote the production of truly recyclable packaging and discourage nonrecyclable packaging.

2. The users of post-consumer plastic and intermediate processors of mixed recyclables say they do not need the code to distinguish the resin content of a particular bottle. They train their employees to sort by container product type and brand. Consequently, the code will be relevant primarily for the household recycler.

3. The need for using a recycling symbol to set off the code has not been demonstrated to the Department. Another symbol such as a triangle could be used to distinguish the material code from other codes. A symbol may not even be necessary as other codes tend to be much smaller than the proposed material code and can be placed elsewhere on the bottle.

DEP recycling staff has surveyed typical household products packaged in plastic containers and sold in retail establishments and has found very few codes on the bottoms of the containers. Those which do appear are generally smaller than those proposed in the coding regulation.

TI28310211

Source: https://www.industrydocuments.ucsf.edu/docs/zggm0031

CCI #3163.3 (emphasis added)

STAFF MTG
4/20/92

ARCO has joined P3
Davenport may replace Hirl

Expanding Prog. Cmte.

Coordinating Group & Prog. Cmte. will work on Name Identification

3 Task Force reports - In Books

Rates & Dates
Two issues:
Reaffirm 25% goal
Negotiat. pos. on RCRA

HDPE producers did not like
1st vote was a tie

Advocating Good Science

Negot. Pos.
Content tied to rate achieved
Fall-back position
Approved 17-3

Outreach Ad Camp.

Take Another Look

70% of focus Aud. => Women

Board ⇒ Very positive response

They have embraced an agressive, anticipatory strategy

The budget figure may well be > than $50 MM

Looking @ $65 MM

FLORIDA

Thursday, 4/23

Gov. office issuing press release on recycling incentives

Easier siting, permitting

EPA Conf ⇒ Plastics Specific Panel

Wellman, Union Carbide

Rod thinks Andrea should not participate

Great Lakes Report on Water Quality

Phase out of use of Cl & Cl containing compounds

San Diego Chapter of Calif. Resource Rec. Assoc.

Mail empty plas. containers to SPI as an expression that coding system doesn't work

CCI #14.20 (emphasis added)

Monday, Mar 23
STAFF MTG.

RCRA markup this week
Amendments due
We have no concensus so we cannot

KRAFT - exempt all plas. pkg & paper pkg
in food cont. in cont. w/ fatty foods

by 1995
So the 25% rate would apply to all plas. that basically are not being recy. to an appreciable degree

Add new code # 8 for PC
GE has amend that would put SPI code on all plas. products
anything heavier than .1 kg
Lot amend targetting film

Senate - Responsible Entity Proposal
If you make it, you need to help recover it

FL looking @ ADF
Suffolk County - Ban is dead
PSPC has asked that we continue PS recy.

New York may be active & MN also

Out of the woods on the state level for 1992

Bailey -
Thanks again for the decorations in my office -
Jerry

CA bill - Min. recy content for bags
30-50%
↳ Supported by Sunoco Graham

PPR

Consumer tested mark

⇐ most identified

Gonna can League Women Voters & go after consumer feder. of Amer.

Test mkts same w/ kick-off this summer

IBM, FORD, GM, AT&T all contacted

New Franklin Study

Handlers Manual
to selected grp of Handlers & Prod. Benefits Cnte.

STAFF MTG
4/13/92

Mtgs in BOCA RATON
1) Rates & CONTENT
2) STRATEGIC PLAN
3) BUDGET

25% - Reaffirm from board
Advocacy doomed to failure unless signif. resources allocated to recy.

EUROPEANS - Feel U.S. is ahead of them on issue of MSW

EXPLORATORY 3°: Recycling - BT well ahead of others
Discussions by invitation only

French version of green dot - BLUE DOT

PETE DINGER

Meetings

Emerging Tech. - AIC
Equip delivered to North Amer. - Early May

Recy. Plas. Task Force
Audience w/ FDA on FRIDAY
Provides protocol for determining whether PCR can be incorp. into ~~food~~ pkg.

~~Database~~ Mtg. - R.W. BECK
Looking @ new reporting values for

NOTES

ART Meeting - Houston 1/26/94 (1)

TROD STEW REORG
IRWIN LEVOWITZ
40-50 Cmtes - fat, too many
Group under 5 categories
Process Tech
Product Tech
Resource Stms
Regulatory Assistance
Oper & Mgt Systems Group

BUDGET
No dues increase - reduction in programs
TOTAL ~~$~~ $50 MM
~~75~~ will receive roughly $14 MM
Going for two-year budget
Once Tech object met, what are implications for Advocacy & Outreach
IL => Lot of PS programs do not have value for Advocacy & Out

OREGON
He does understand that rate must be met by 1/1/95
Chinese proverb
Give a man a fish - for a day
Teach a man to fish - lifetime

No long term commitments to entrap us
THEIR way - two yr. commit

He knows getting the next 5% ↑ in Recy Rate will be tough

Board allowed us to tie Conrad to

[redacted] [redacted] (2)

NOTES

to reaching goal - Semi Works PLANT
Permitting issues have prolonged
Contract & increased cost
AG Decision
Will make it difficult for us to work w/ communities
Foolish for us to make any commit to comm. based on this decision
Source material

He hopes this is how we are viewed

Not likely we will meet goal -
Won't be for lack of effort on the part of the plastics indus
Advoc. & comm will need to work on contingency plans

→ PS will focus on teaching people how to fish

Top down mgmt review of projects

Overall APC objectives
Have not changed
Does not see how we can sunset this organization
More done for less

Jim Buck Shift in the way APC operates from defensive stance to offensive
What are you for, we know what you are against

CA TASK FORCE
Advocacy Driven - No prod. stew.
activity in CA - No Time
If you want to change the law,

NOTES (3)

you better have an alternative & be willing to follow through - we did not heed this
CA LAW does not preclude other types of ART

DAVE CORNELL - Any thought to distrib of minutes from Cook GRP mtgs.

IL → less paper & more highlights
Activity directors & cmte heads should facilitate this

Prod. Stew chart attached to minutes

Breakdown of $14.6 MM Budget

IRWIN did not realize he was presenting today

Jim Buck
- One of the most open organizations he has known

IL
- We may be too open in our comm. of info
- Don't want paper floating around saying we won't meet goal
HIGHLY SENSITIVE POLITICALLY

CONRAD PROJECT

Oil shipped to Lyondell & processed

Ran a feed of PET & PVC - <20 ppm Cl-

Over 500 people saw Conrad in 1993

CCI #79.25 (emphasis added)

[redacted] [redacted] (4) NOTES

TSCA issues still being addressed

BILL KOVACS
OR ATT. GEN.
They have agreed that all our facts in this proceeding are true.
This will be crucial in a court's deter of whether we are creating a product
- The downstream product is irrelevant
- The AG will then say all or part of the prod used for energy prod makes it all energy recd.
- Fire pyrolysis - recy

The window they have left open for us means nothing.
- It is only a means to force us into rulemaking process
- Prescribed legal argument to use rule making

This is a horse race.

We will try a very narrow issue through the courts.
Complaint filed w/in 10 days of approval
Resolution in Superior Ct w/in 6 mons w/ Appeal, By the end of the year

- Get letters from communities saying the AG's opinion kept them from working w/ us.

Permit forthcoming on solid waste by Feb ~~##~~ 11

IL - What if we are successful, then we may position ourselves as the

NOTES (5)

Approval from SPI Board - APC not legal entity

responsible party

Went through 4 options based on AG's opin

Suing AG - He is the named party
His interp. contrary to definition

Went thru step-by-step process for MM

What are costs of this legal proceeding & who pays

Court comes 30 days ć last briefing

Need information to Bill on paper indus. - Jerry Hassell
How much of what they claim as recy. actually goes to produce fuel

This gives MM opportunity to delay Conrad
note - Should we delay just to delay?
we need for Conrad to be real - then we can show harm

IL - This is a fundamentally uneconomical process so why would you want to go for credit on only getting 70 acre of the Conrad oil that goes to a refinery

Lee Gunnet - We may be able to spend a lot less money focusing on conventional recy & only using Conrad as R&D

CCI #79.27 (emphasis added)

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STAFF MTG 5/8/95

RATE RELEASE

Technical review

PLASTICS USA - To go or not
will consider

Global Mtg - We are host

Project Tracking - Draft of next steps

The Cutbacks worried it will hurt demand

Florida ADF defeated
Was not reauthorized
Ends October 1

WASH, DC
Petition drive for deposit leg.

OREGON - Expanded bottle bill
- 80,000 sigs needed
- All drink containers

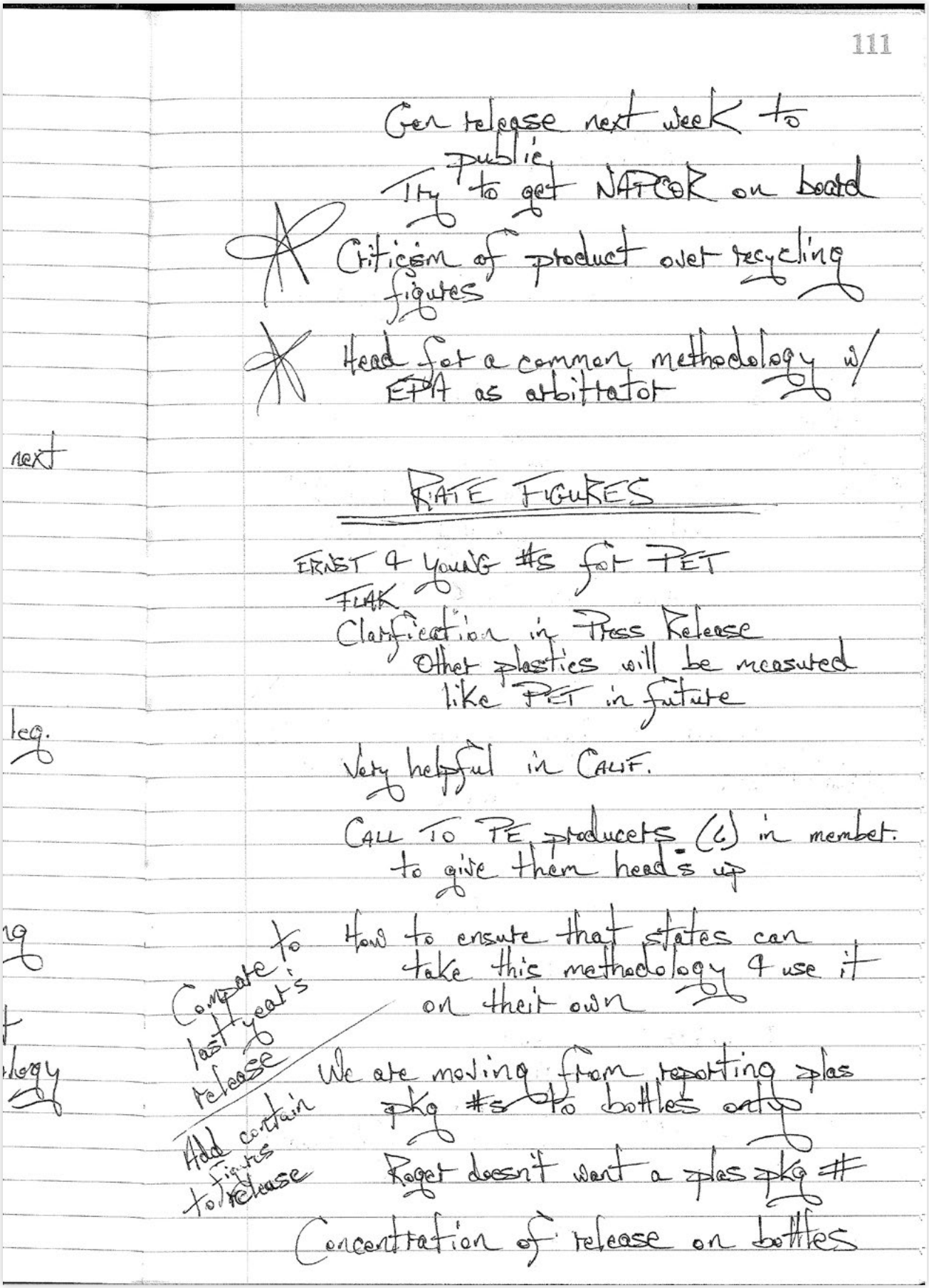
Japan - Moving toward something like Green Dot

CALIF - React still trying to get CIWMB to buy into methodology

RATE - Technical terms
- two stage release
Advance packet to short target list

Compare last year's release

Add comments to file



111

Get release next week to public

Try to get NAPCOR on board

* Criticism of product over recycling figures

* Head for a common methodology w/ EPA as arbitrator

next

RATE FIGURES

FIRST 4 YEARS #s for PET

FLAK

Clarification in Press Release

Other plastics will be measured like PET in future

leg.

Very helpful in CALIF.

CALL TO PE producers (6) in member to give them heads up

How to ensure that states can take this methodology & use it on their own

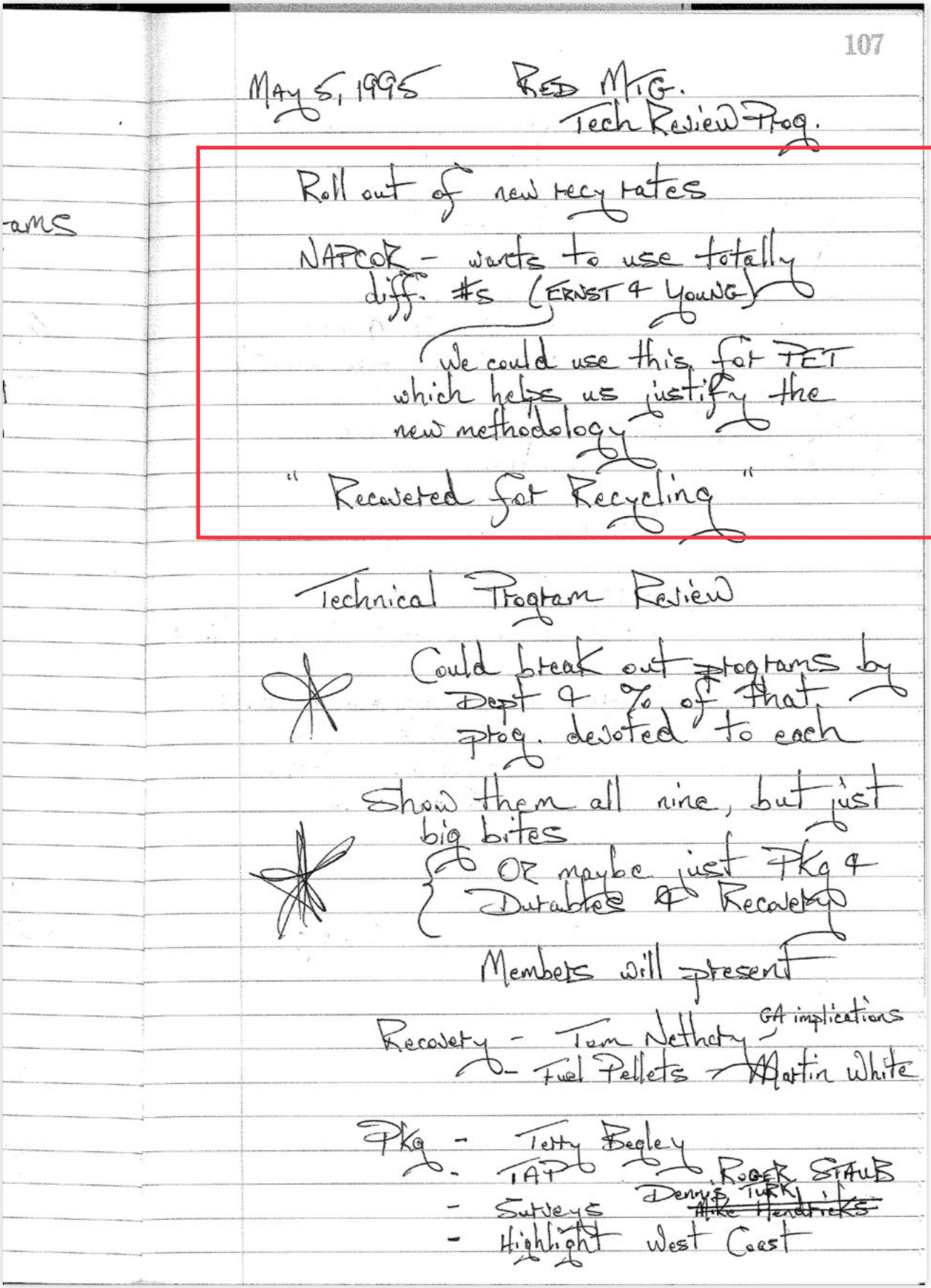
Compare to last year's release

Add certain figures to release

We are moving from reporting plas pkg #s to bottles only

Roger doesn't want a plas pkg #

Concentration of release on bottles



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May 5, 1995 Red Mtg.
Tech Review Prog.

Roll out of new recy rates

NAPCOR - wants to use totally diff. #s (Ernst & Young)

We could use this for PET which helps us justify the new methodology

"Recycled for Recycling"

Technical Program Review

Could break out programs by Dept & % of that prog. devoted to each

Show them all nine, but just big bites
Or maybe just Pkg & Durables & Recovery

Members will present

Recovery - Tom Nethery GA implications
- Fuel Pellets - Martin White

Pkg - Terry Begley
- TAP Roger Staub
- Surveys Dennis Turk ~~Mike Hendricks~~
- Highlight West Coast

The New York Times

THURSDAY, FEBRUARY 23, 1989

Plastics and recycling: Debunking a myth

Like the 20-year-old job applicant who is told she needs 25 years of experience, the plastics packaging industry is often placed in a no-win situation.

"The paper and glass industries," we're told, "are producing products that are being recycled, and you're not. So you are environmental villains, adding to the waste disposal problem. There ought to be a law against the things you make."

To which we say, that's the stuff of myths, not fact.

Consider first a little basic history. Glassmaking can be traced back to the ancient Egyptians, thousands of years before the common era. Paper was first processed in ancient China, almost 2,000 years ago. Against that sort of time frame, the entire history of the plastics industry can be measured in microseconds.

But while ours is a fairly new industry, based on fairly new technology, we know that to grow and prosper we must be sensitive to environmental concerns. And when it comes to recycling, we're off to a good start. Every day vast amounts of discarded plastics are given new life and sent back into the marketplace as useful products.

Fully 20 percent of plastic beverage bottles made of polyethylene terephthalate (PET) are already being recycled, and the industry goal is 50 percent by 1992. One company alone, which began recycling PET bottles in the '70s, today processes over 100 million pounds a year into polyester fiber.

Most major plastics manufacturers now recycle virtually all of their in-plant scrap. In addition, each year larger companies buy and reuse half a billion pounds of polyethylene film scrap discarded by smaller manufacturers who don't have recycling machinery.

There are also some promising new ventures:

- The nation's first plant to recycle used polystyrene foam cups, food trays, and similar items will open soon in New England. We're proud that the plant, called Plastics Again, is a joint venture of Mobil Chemical Company and our partner, Genpak Corporation. The plant will be able to turn three million pounds of used foam products into plastic pellets for use again in the manufacture of products like home insulation, flowerpots, and coat hangers. Those three million pounds represent the amount of used plastic foam discarded by about 1,000 school cafeterias each year.
- Another chemical company is involved in a joint venture to reclaim PET for use as fill for clothing and pillows, carpeting, sporting goods, paintbrushes, automotive parts, and even the liners used to keep the materials in sanitary landfills from leaching into the earth. The plant is based on a new technology expected to bolster the total recycling effort.
- Still another company has licensed German technology to convert mixed plastic waste into useful molded products. Other technologies are accomplishing the same result, but the new one is believed capable of handling and producing larger volumes. The resultant plastic sheets can be used as a replacement for wood in making panels, drainage troughs used in construction, and industrial pallets.

The examples we have cited are merely the latest evidence that plastics, like glass and paper, can indeed be recycled in sufficient quantities to make a meaningful dent in the waste stream. The point is, within the time frame of the plastics industry's existence, recycling has played a useful role. Furthermore, we're determined to get better as we grow older.

Most students of America's waste problem are convinced that ultimately, the solutions will include source reduction, recycling, proper incineration, and sanitary landfills. The plastics industry is ready to play a constructive role in all those areas. We may be the new kid on the packaging block, but we know our products must be environmentally sound. And when it comes to recycling, we're only getting started—and rapidly gaining momentum.

Mobil

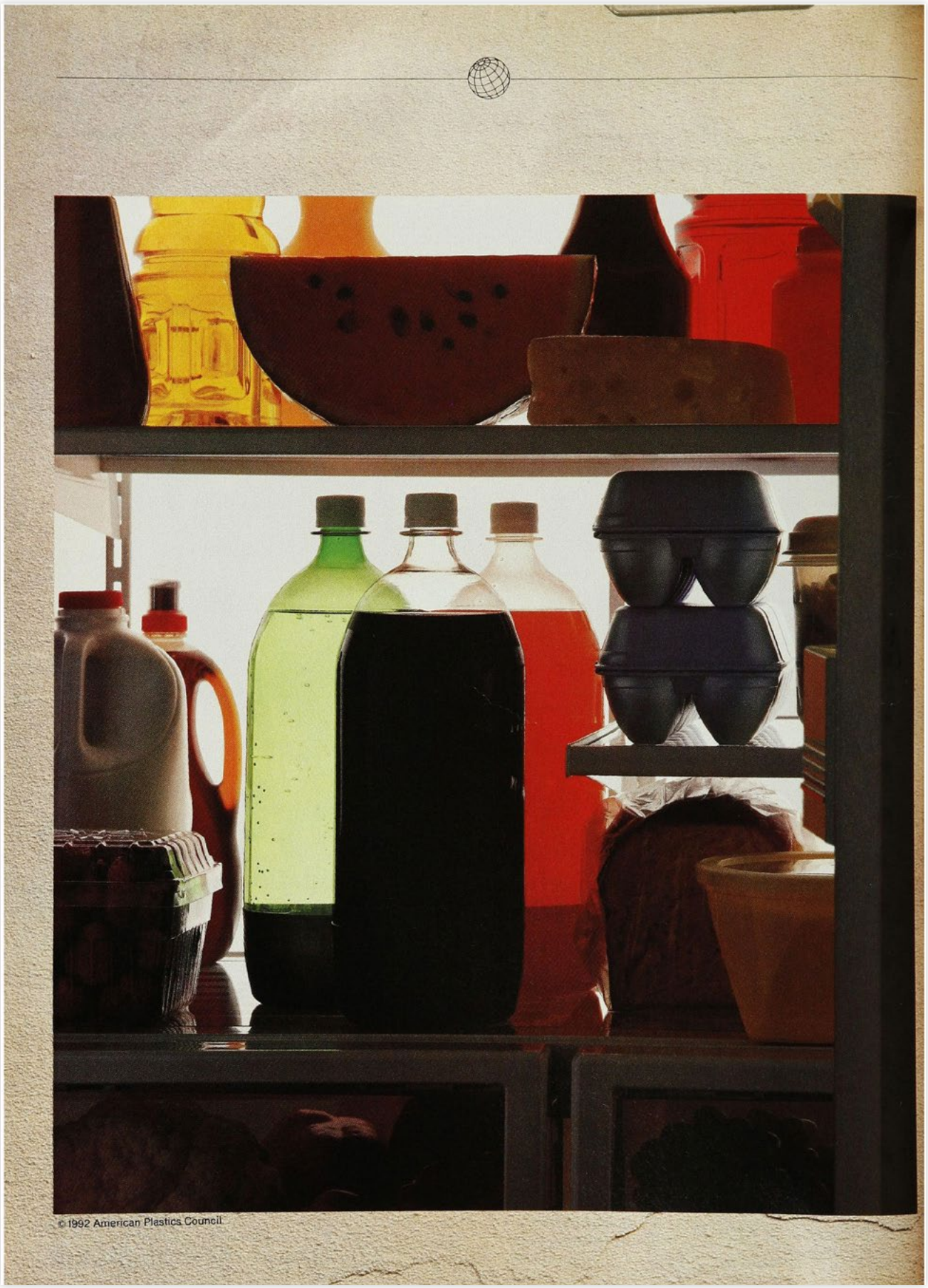
taxes are cut. Tax actions following the recession of the early 1980s were remarkably similar to what has happened recently. In FY 1984, the beginning of the fiscal turnaround in most states, the net tax increase was $2.3 billion or 1.2 percent of the previous year's tax collections. But in FY 1985, the states actually enacted a net tax cut of $1.3 billion or 0.6 percent of previous year collections. In FY 1994, the net state tax increase was 1.2 percent of previous year collections. For FY 1995, the net change is a slight reduction if Michigan is excluded from the calculation.

The story is not so similar on the spending side, however. Exiting the recession of the early 1980s, states increased spending significantly more than they are now. In FY 1984 and 1985, appropriations grew about 8 percent. By contrast, in FY 1994 and 1995 the growth is in the 4 percent range. One factor that helps explain this difference is the stronger economic recovery following the recession of the early 1980s. "The economy was really humming along at a much higher rate back then," says Wyss. "Real growth in the '80s recovery was almost twice as high as it is currently."

But another big difference between 1985 and 1994 seems to be the heightened sense of caution that lawmakers now have toward state finances and worries that they don't know what's coming down the pike. Concerns about modest economic growth make lawmakers hesitant to boost spending to unsustainable levels or reduce taxes significantly. Potential federal actions also are keeping policymakers wary. "While the news appears to be good, state fiscal conditions could change dramatically when final decisions are made in Washington, D.C., on a number of pieces of legislation including health care and welfare reform," says Representative Karen McCarthy, who chairs the Missouri House Ways and Means Committee.

On top of the unknown, legislators are repeatedly being told by fiscal experts that state finances are structurally imbalanced—that is, revenue systems are not designed to keep pace with economic growth or the growth in state spending. The message is lost on some because states are experiencing a temporary reprieve. But more fiscal difficulties are inevitable. "There is general agreement that fiscal pressures are substantial and it's pretty clear that simply looking at the picture one and two years out, the pattern of state finances is unsustainable over time. Nearly everybody is going to be in trouble in the next recession because of structural imbalances," says Harold A. Hovey, a long-time observer of state finances. DRI/McGraw-Hill's Wyss concurs: "The economic recovery helped budgets in most states and allowed a delay in dealing with underlying problems."

It's still too early to predict when the next national recession may hit, although a few states already are predicting problems for FY 1996. Because of the unknowns surrounding state finances and the potential impact of federal changes, most policymakers seem to be playing state finances close to the vest. "The jury is still out on how optimistic we can be about state finances," says Representative Evans. "With slow economic growth as the backdrop, we're not out of the woods yet."


© 1992 American Plastics Council

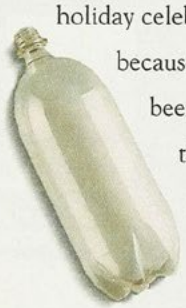
Your New Carpeting May Already Be In Your Refrigerator.

If you're looking for ways to help make the earth a better place to live, one solution is inside your refrigerator right now. Next to the pillow. Behind the picnic table. • It's called recycling. And when you look at plastic and recycling, you'll see it's turning into some pretty remarkable things. • Look at plastic bottles turning into toys, pillows, garbage cans, sailboat sails, even plastic "lumber." Not to mention back into new bottles. And polystyrene foam dishes and cups recycled into building insulation, office accessories and VCR tape cassettes. • Of course, you should expect to find recycled plastic in lots of products because so much plastic packaging is being recycled. Over 650 *million* pounds was recycled last year, and that number will keep growing, thanks in part to the more than 4,400 communities that include plastic in their recycling programs. • But if you think recyclability is the only earth-friendly benefit of plastic, take another look. Plastic saves energy by insulating homes to save fuel. And helps reduce pollution by making cars lighter to save gas. • Plastic even helps save the earth, literally. Plastic geotextile fabrics protect beachfront land from erosion and encourage plant growth. • To learn more about the benefits of plastic, just call 1-800-777-9500 Ext. 34, and the American Plastics Council will gladly send you a free booklet. • And just think. Someday that soda bottle in your fridge may be a beautiful addition to your living room floor.

TAKE ANOTHER LOOK AT PLASTIC.

A BOTTLE THAT CAN COME BACK FOR NEW YEAR'S EVE IS A CAUSE FOR THANKSGIVING

Now one plastic bottle can become part of all your holiday celebrations. That's because processes have been developed that make polyethylene terephthalate (PET) plastic beverage bottles and food containers recyclable into new ones.



1 PETE

Until recently, PET plastic containers have only been recycled into such things as carpet and fiberfill for pillows and ski jackets. But now, a bottle can come back as a bottle, over and over again. And that's great news for the environment.

In 1990, 225 million pounds of PET plastic were recycled. But much more needs to be done. And more people need to know that PET plastic can now be recycled repeatedly. If you'd like to help, give us a call at 1-800-7NAPCOR. Together, we can ensure this holiday season has many happy returns.

NAPCOR
NATIONAL ASSOCIATION FOR PLASTIC CONTAINER RECOVERY

If plastic isn't recycled, it's a waste.

INNOVATIONS IN RECYCLING

Ten years ago, recycling was something people did when they saved cans to add a few pennies to their PTA's coffers. Now, goaded by the specter of dwindling landfill space recycling has become a national pastime. Solid waste management, of which recycling is a part, is one of the top issues facing the nation's legislatures.

But legislators don't have to face this challenge alone. Industries that produce the most waste are often the most innovative and progressive in developing programs to grapple with the solid waste issue. In this special advertising section, designed for state legislators, representatives of six organizations describe their efforts to help legislators and other officials create comprehensive programs to tackle solid waste.

Solid waste management is a legislative, industrial, and social challenge. To date, the most effective legislation yet developed to combat this problem has been the result of collaboration among private citizens, corporations, government officials and legislators. Although the solutions to the solid waste issue will not be simple, a continued partnership will improve the rate of success in the next ten years.

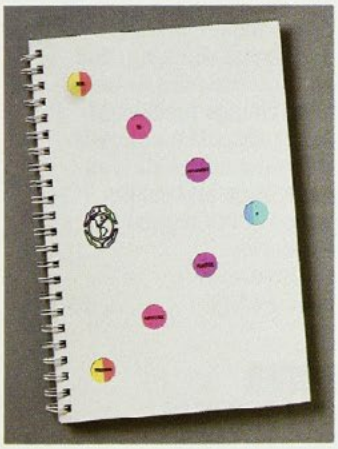
Special Insert

SPECIAL ADVERTISING INSERT

PLASTICS INDUSTRY OFFERS STEP BY STEP RECYCLING PROGRAM SET UP

Submitted by the Council for Solid Waste Solutions

On March 28, the plastics industry announced ambitious new goals for plastics recycling, setting its sights on recycling 25 percent of all plastic bottles and containers by 1995. To do this, the Council for Solid Waste Solutions says a majority of Americans will have to be able to participate in



plastics recycling programs. A new publication from the Council, *How to Implement a Plastics Recycling Program*, is now available to make that goal a reality.

The Council has conducted extensive surveys of existing recycling programs and estimates that there are currently more than 500 communities nationwide recycling plastics at curbside. Through these programs, approximately 10 percent of Americans now have first-hand experience with plastics recycling. The Council has announced its intention to double the number of curbside collection programs including plastic each year, to reach a goal of 4,000 in 1994.

In 1990, the Council undertook a massive research and analysis program to develop what it calls the Blueprint for Plastics Recycling, identifying the state of the art in plastics recycling. These findings have now been incorporated into the Council's comprehensive how-to manual for regional and municipal recycling officials.

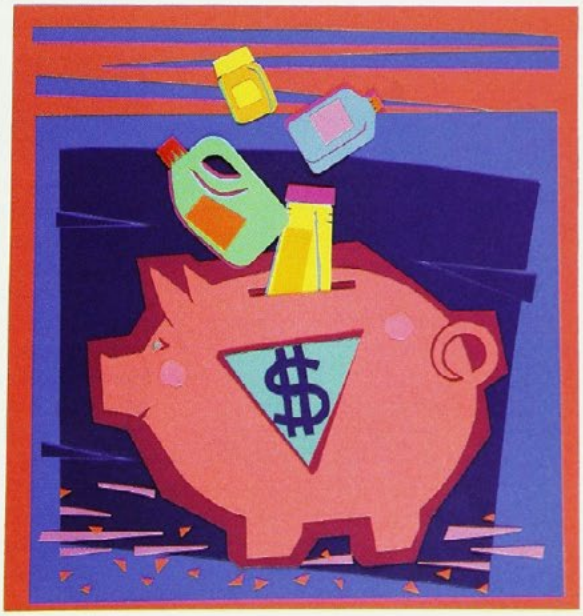
How to Implement a Plastics Recycling Program takes recycling coordinators in both the public and private sectors step-by-step through the design, implementation and evaluation of a multi-material collection program including plastics. Topics addressed include:

- Existing and developmental collection systems;
- Factors to consider when designing collection and processing systems;
- Choosing between curbside and drop-off collection systems;
- How to survey potential markets;
- Characteristics of currently marketable resins;
- How contaminants affect marketability;
- Planning and implementing effective community relations and consumer education campaigns;
- Special considerations for rural areas; and the
- Economics of implementing plastics recycling.

The manual also discusses developing trends in technology and marketing strategies.

If you're a waste management professional or municipal official, the Blueprint will be an invaluable tool in your plastics recycling planning. To receive a copy of the Council's *How to Implement a Plastics Recycling Program* call the Council for Solid Waste Solutions at 1-800-2-HELP-90.

Recycling coordinators should also be on the lookout for special workshop presentations based on this manual. As many as 20 of these interactive workshops will be held in conjunction with regional waste management conferences all across the country in 1991.



Display Ad 609 -- No Title
Chicago Tribune (1963-1996); Apr 5, 1992; ProQuest Historical Newspapers: Chicago Tribune
pg. Z21

EARTH DAY

Together, We're Working To Improve Products For Our Environment

Recycle Oil to Help Keep Our Water Pure

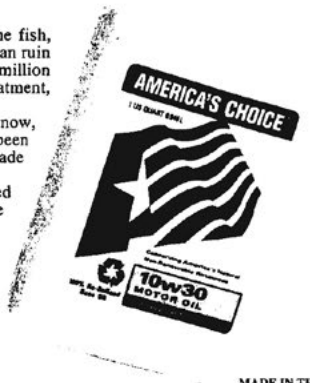
Collecting and recycling used motor oil helps protect local drinking water supplies, along with the fish, wildlife, and human populations which depend upon clean water. Even extremely small amounts of oil can ruin vast pure water supplies. One federal agency says that as little as one gallon of used oil can pollute a million gallons of fresh drinking water. Used oil poured down the sewer can interfere with proper sewage treatment, sometimes allowing improperly treated sewage to be discharged.

Wal-Mart Service Center locations collect used motor oil from our customers for recycling. And now, Wal-Mart is proud to offer you the choice of using high quality recycled oil. This recycled oil has been refined to meet strict standards, and we're pleased to be able to say it is every bit as good as motor oil made from virgin petroleum.

Buying recycled oil helps support companies which buy used oil and the programs which collect used oil. For more information about recycling used motor oil, you can write to your state recycling office, the Federal Environmental Protection Agency, or the National Oil Recyclers Association.

National Oil Recyclers Association
2600 Virginia Avenue, NW
Suite 1000
Washington, DC 20037

U.S. Environmental Protection Agency
Office of Solid Waste Management
RCRA Information Center
401 M Street,
SW Washington, DC 20460



America's Choice Oil is 100% re-refined and meets or exceeds the requirements of new car manufacturers. Engine life is prolonged by being kept cleaner throughout drain periods. Available in 10W30 and 10W40 weights. No. 5562805000.

MADE IN THE USA

MADE IN THE USA

Recycle Plastic to Save Landfill Space

Shrink and stretch wrap is a variety of plastic many companies use to hold and protect merchandise while it is being transported from the manufacturer to your local store. All Wal-Mart Distribution Centers currently separate and bale their shrink and stretch wrap. This material is included in a plastic sheeting, manufactured by Poly America, which we sell in our hardware department. Each year, more than a million pounds of shrink and stretch wrap is recycled.

All Wal-Mart stores which offer plastic shopping bags now accept used Wal-Mart plastic shopping bags from our customers. Along with our shrink and stretch wrap, Wal-Mart sends these shopping bags to Poly America for recycling into plastic sheeting.

Compared to other materials, the recycling of plastic is relatively new. To receive more information about the many different types of plastic and how they can be recycled, write to one of these addresses:

Council on Plastic and Packaging in the Environment
1275 K Street, NW Suite 900
Washington, DC 20005

National Association for Plastic Container Recovery
4828 Parkway Plaza Blvd.
Suite 260, Charlotte, NC 28217

Poly America® 3x50' Plastic Sheeting contains 35% post-consumer scrap and 35% post-industrial scrap, some of which Poly America buys from Wal-Mart Distribution centers. It's an excellent aid when landscaping or gardening and also functions as a drop cloth. Choose clear or black.

Recycle Batteries to Protect Our Air, Soil and Water

We Americans buy about 80 million lead-acid batteries for our cars and trucks every year. Over the years, there has been a great deal of concern about the need to recycle and reclaim the valuable materials these batteries contain. Wal-Mart shares your concern. Here are some of the things we're doing to help you recover these materials and help keep them out of our unspoiled natural environments.

Bring in your old automobile battery when you buy a new battery, and Wal-Mart will waive the usual battery exchange fee. As an additional service to you, we will also accept your extra used lead-acid automobile batteries at no charge. (Some states require their own additional battery disposal fee. See your local store for details.)

When your used battery leaves our store, it is taken to a processing facility. There it is crushed, and the three major components of the battery — lead, acid and plastic — are separated from one another. The lead is reformulated in a smelter, the acid is neutralized, and the plastic is recycled. When the entire process is done, about 98% of the original battery materials are recycled.

At Wal-Mart, we appreciate your commitment to preserving the environment for today and tomorrow. Many of our present efforts would never have gotten off the ground without help from you. Thanks for your past ideas, and please let us know how we can do even better.

MADE IN THE USA

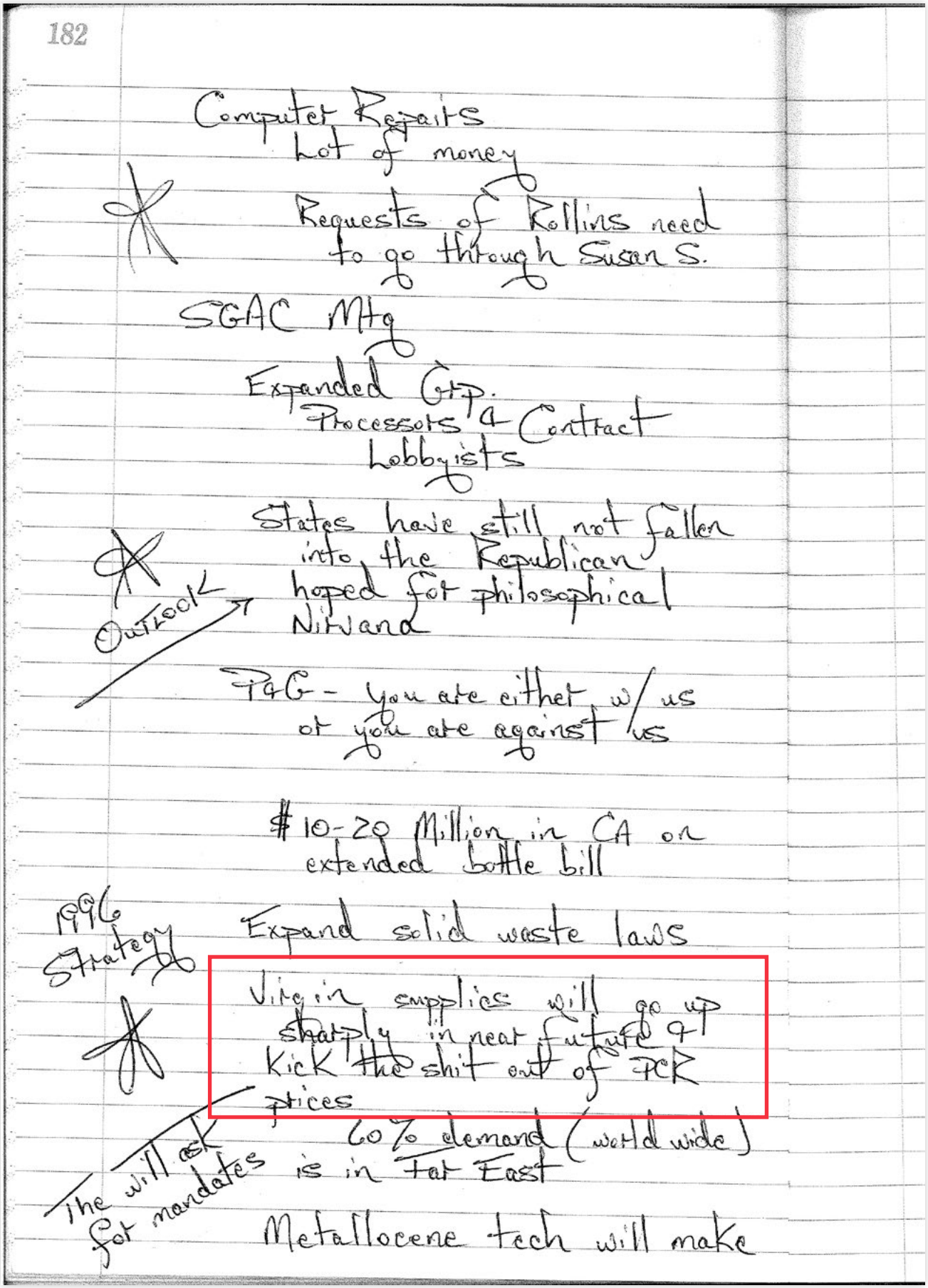
Omega V, 60 Month Batteries are 98% recyclable. The lead is reused in new batteries. The plastic cases, covers, vent caps and handles are ground, washed and reused in industry. These batteries provide up to 550 Cold Cranking AMPS. Sizes are available to fit most domestic and import cars and trucks.

Some states may charge a battery disposal fee. See your local store for details.

"Recycling makes a powerful difference. By bringing back your old battery you avoid a $5 exchange fee* on your new battery purchase and help us protect the environment. All returned batteries will be recycled into new ones."
**** $10.00 Exchange Fee in Maine***

21

EARTH DAY



182

Computer Repairs
Lot of money

Requests of Rollins need to go through Susan S.

SGAC Mtg

Expanded Grp.
Processors & Contract Lobbyists

States have still not fallen into the Republican hoped for philosophical Nirvana

Outlook

P&G - You are either w/ us or you are against us

$ 10-20 Million in CA on extended bottle bill

1996 Strategy

Expand solid waste laws

Virgin supplies will go up sharply in near future & Kick the shit out of PCR prices

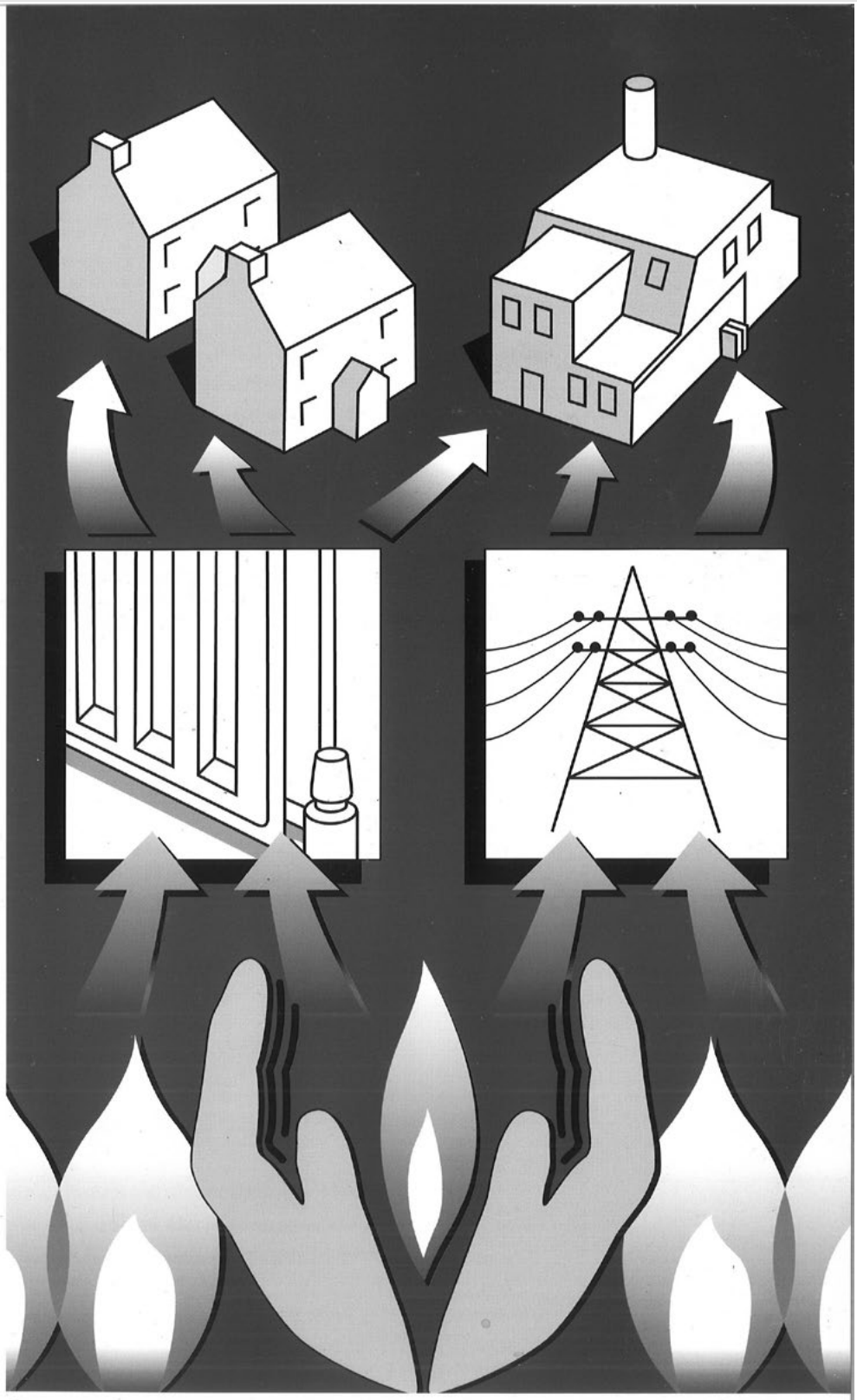
60% demand (world wide) is in Far East

They will ask for mandates

Metallocene tech will make

One of a series of APME Summary Reports

SUMMARY REPORT



APME
ASSOCIATION OF PLASTICS MANUFACTURERS IN EUROPE

Separated mixed plastics waste as a fuel source

SUMMARY REPORT

Introduction

Using resources wisely from beginning to end of life is the plastics industry's goal. In terms of recovery of used plastics applications, the industry is committed to diverting a valuable resource from landfill and utilising its material, chemical and energy content to best advantage.

Many recovery options exist from re-use, mechanical and feedstock recycling to energy recovery. This paper looks at energy recovery and shows that mixed plastics waste (MPW) can be treated as a fuel source in its own right, replacing fossil fuels up to 100 per cent, with its valuable energy content being recovered in energy recovery plants.

Energy recovery from plastics waste can be achieved through:

Combustion with municipal solid waste (MSW)

Unsorted household waste, including some plastics, combusted as a mixed fuel in large MSW incinerators.
Energy value: 10 (megajoule = MJ)/kg [Ref.1.]

Co-combustion with fossil fuels

- **Refuse derived fuel (RDF)**
  Produced by removing non-combustible components from MSW, such as metals, glass and putrescible materials. RDF can be used as a single fuel source or combined with fossil fuels in a co-combustion approach.
  Energy value: 15-17 MJ/kg [Ref.2.]

- **Packaging derived fuel (PDF)**
  Consisting mainly of source separated paper and plastics packaging. It can be co-combusted with fossil fuels.
  Energy value: 20 MJ/kg [Ref.3.]

Plastics fuel replacing up to 100 per cent of fossil fuels

Separately collected plastics waste, or plastics sorted from waste streams, and processed to yield a specified fuel.
Energy value: 25-40 MJ/kg [Ref.4.]

Summary

The plastics industry believes that using plastics as a fuel in its own right deserves serious consideration and research. Plastics as a fuel, which can be burnt on its own as a single fuel, is an alternative energy source which has the potential to contribute to Europe's energy conservation needs and reduce our use of natural resources.

This paper brings together the most up-to-date research and evaluation of plastics waste as an alternative fuel. It draws on joint industry studies which examine feasibility and environmental considerations.

The studies include:

- MPW as the single fuel for a pilot scale plant in Finland using Ahlstrom technology
- MPW as the single fuel for a semi-industrial scale Ebara plant in Japan
- environmental analysis of energy recovery from plastics waste.
- economic viability

The popularity of recycling increasingly sees different materials being sorted and separated out of the waste stream. Eco-impact studies in the Netherlands and Germany have demonstrated that there is a limit (18 per cent maximum in the Netherlands) to the amount of household plastics waste which can be mechanically recycled with environmental gain. This means that the majority of the remaining waste must be treated by other techniques.

This remaining waste includes lightweight MPW contaminated with dirt. It is unsuitable for ecologically beneficial recycling. However, this MPW is a valuable energy source (one kilogram of plastics is equivalent to one kilogram of oil).

Until recently, MPW has been combusted with MSW to produce some energy for local heating needs. However, there is also the potential to use its high energy value more efficiently by:

- optimal MSW combustion
- co-combustion
- use as a single fuel source to supply energy in the form of electricity and/or steam to an industrial complex.

Before 1991, MPW had not been widely considered as a 'fuel'. Then APME initiated a programme to evaluate existing technologies used with other fuel sources and examine the potential for MPW. The research showed that 'fluidised bed combustion' provides a suitable technique for high calorific, low ash fuels such as MPW. Since then, APME's programme has continued in order to:

- obtain performance data on combustion and energy recovery from MPW as a fuel source in fluidised beds
- determine the energy recovery rate
- evaluate solid and gaseous emissions
- provide an assessment of costs.

This paper describes the research undertaken, the processes assessed and the results achieved.

CCI #52.3 (emphasis added)

91-802 ENR

CRS Report for Congress

Recycling and Reducing Packaging Waste:

How the United States Compares to Other Countries

James E. McCarthy
Specialist
Environment and Natural Resources Policy Division

November 8, 1991

CRS

Congressional Research Service • The Library of Congress

Thus, identification of resins, collection, and sorting all pose obstacles to the recycling of post-consumer plastics. Given these problems, plastics recycling will ultimately face some key decisions. The most important of these would seem to be: 1) whether to concentrate on material recycling, or simply to attempt to recover the energy value of plastic in waste-to-energy incinerators; and 2) if material recycling is the option chosen, whether to focus on individual resins and products, or whether to collect and recycle the material as mixed plastic.

Notable progress has been made in developing technologies for material recycling, but it is clear from discussions with plastic industry executives from many countries that many feel material recycling of plastics from the municipal waste stream makes little sense. Noting the high energy content of plastic waste (Table 24), the U.S. industry's Council for Solid Waste Solutions concludes:

> Scientific studies around the world have shown that waste-to-energy incineration plants are an environmentally safe option for disposing of solid waste when using available emission control technologies and high combustion temperatures. Because of their high energy content, plastics can help the entire waste mix burn hotter and more

---

Table 24

Energy Values for Key Components of Municipal Solid Waste

Material	Btu/Pound	Material	Btu/Pound
Plastics			
- Polyethylene	19,900	Corrugated Boxes (paper)	7,000
- Polypropylene	19,850	Textiles	6,900
- Polystyrene	17,800	Wood	6,700
Rubber	10,900	Average for MSW	4,500
Newspaper	8,000	Yard Wastes	3,000
Leather	7,200	Food Wastes	2,600

Source: The Council for Solid Waste Solutions

Table 25

Energy Recovery from Municipal Waste in Selected OECD Countries

Country	Amount of MSW (million tons)	% Energy Recovery
United States	178	13%
Canada	18	4
France	17	23
Germany	21	28
Italy	17	4
Spain	12	3
United Kingdom	19	6
Japan	47	21
Australia	11	0

Source: OECD Environmental Data Compendium, 1989. Data for the United States, Japan, and the United Kingdom supplemented by personal communications.

---

completely in a waste-to-energy incinerator.[86]

Even though many argue that energy recovery is the best means of "recycling" plastic, however, there may be few countries that will accept this as a form of recycling. Why? Because a) the level of energy recovery is quite low in most countries (Table 25); b) incineration, rightly or wrongly, is too controversial in most countries to expect it to grow rapidly; and c) the public is generally aware, partly thanks to industry information efforts, that plastics can be economically recycled as materials.

Thus, it is more likely that choices will need to be made within the realm of material recycling. Here the key question is whether to focus on individual resins or to recycle mixed plastic. At present, the markets favor individual resins. These can be cleaned, repelletized, and used in a wide variety of applications.

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[86] "High Energy Content Makes Plastics a Good Fuel Source," Washington, D.C., The Council for Solid Waste Solutions, August 23, 1990.

KAMENA

MODERN PLASTICS INDUSTRY FORUM

Turn Waste Into Profits:
An Integrated Approach to Plastics Management

Karl W. Kamena
Director, Government Affairs/
Public Issues
Dow Plastics, Dow U.S.A.
2040 Willard H. Dow Center
Midland, MI 48674

Emerging—and Controversial—
Alternatives to Recycling

Energy-Retrieval of Plastics Waste:
Time for a Second Look

April 6-7, 1992

The Omni Shoreham Hotel
Washington, DC

material it is often more efficient to extract the energy as energy rather than to make a new bottle out of an old bottle. Furthermore, the technology already exists to do this -- the "fuel cell" is a waste-to-energy incinerator. And, there are about 130 plants in this country today handling approximately 16% of our total municipal solid waste stream, which roughly translates to 16% of the plastics waste stream undergoing the process of energy retrieval.

Remarkably, with all the focus on recycling, and particularly plastics recycling, the extraction of energy from plastics in municipal incinerators across the country is almost totally unappreciated by an uniformed public. Underscore uninformed, not misinformed. We, the plastics industry and our customers, have taken the easy politically correct road regarding incineration of ignoring its existence and value to integrated waste management, as it positively impacts both the economics of effective waste management and protecting public health and the environment. Rather than quarrel with whether this was the right strategy (for there is a risk with supporting an unpopular concept, and incineration has certainly had its very vocal detractors), let me suggest that there is a changing public perception of the need for new waste-to-energy facilities, and, while NIMBY will always be with us, the general public is becoming more accommodating.

[Refer to recent public opinion polls. In particular, a NEED poll of students shows overwhelming support for the construction of waste-to-energy plants.]

The question of whether or not plastics can be safely incinerated comes up from time to time. Suffice to say that incinerator suppliers operators do not have problems with plastics and do not see the efficacy of burning plastics a major problem in the public eye (although, unquestionably we must communicate these points to the public).

3

[Review industry status and environmental regulations]

Energy retrieval from plastics makes the most sense in a municipal waste-to-energy incinerator where plastics are part of an unsorted, mixed waste feed. However, aggressive municipal collection programs are providing a stream of plastics that are not readily recyclable for their raw material values. In these cases, energy retrieval may make sense used directly as a fuel, or with secondary processing into solid or liquid fuel to augment power generation in an existing plant. Whether or not various energy retrieval schemes are economically viable compared to recycling, or other waste management/disposal alternatives, is the unanswered question. But, as individual companies and collectively as an industry, we should aggressively and visibly explore these approaches to reinforce the notion that as is the case with aluminum, a fundamental rationale to recycle is to conserve energy, not necessarily raw material.

Recycling plastics is undergoing some very serious challenges right now (as are other material types), not the least of which is an economically sustainable driving force. I believe the opportunity we have at this time is to build on the popularity of recycling to get the public to understand and appreciate from a broader environmental and economic perspective the value of recycling with overall energy conservation as a primary consideration. In my opinion, the public is ready and willing to hear that municipal solid waste management is a resolvable problem, recycling and waste-to-energy incineration are compatible and complementary waste management options and both are important components of integrated waste management. Plastics, because they are both recyclable and combustible, are part of the overall solution.

Thank you.

4

CCI #884.8 (emphasis added)

NOTES (4)

EPA AGAIN

How EPA & Franklin come up w/ recycling #s - we need to talk to a tech person @ Franklin before going to EPA

Jean & Jimmy will task Pete

Gov/Tech Mtg 1/21/94 (1)

Franklin Study

Draft report
- Question report & how data used
- Makes it complicated
- Makes it look like conventional & Conrad are equivalent
- Don't use equivalent starting & ending points for Conwen & Conrad
- Recy paper - Plastic Lumber & Paper

AGs opinion -
Pyrolysis ruled as incineration - 10-29 opinion
- CA - after 1995, communities can get credit for diversion if send plastics to thermal processing
- Board officers to decide whether to challenge in court

Board Mtg & Recy Plans - Customers
- Irwin's presentation

[redacted] [redacted]

Irwin "We are committed to the activities, but not committed to the results."

(2) NOTES

Not able to adequately brief the Board on issues of concern
- Two year agree w/ Whitfield
- Make them self-sufficient

GMA - Mtg Feb 17
Kim VolkBrecht - level of commitment - what will you do i 2 years

Told GMA & NFPA that E.D. letter stands, but if infrastructure crumbles - all bets are off
- We won't shore up programs that fail
- Disconnect betwn E.D & Irwin

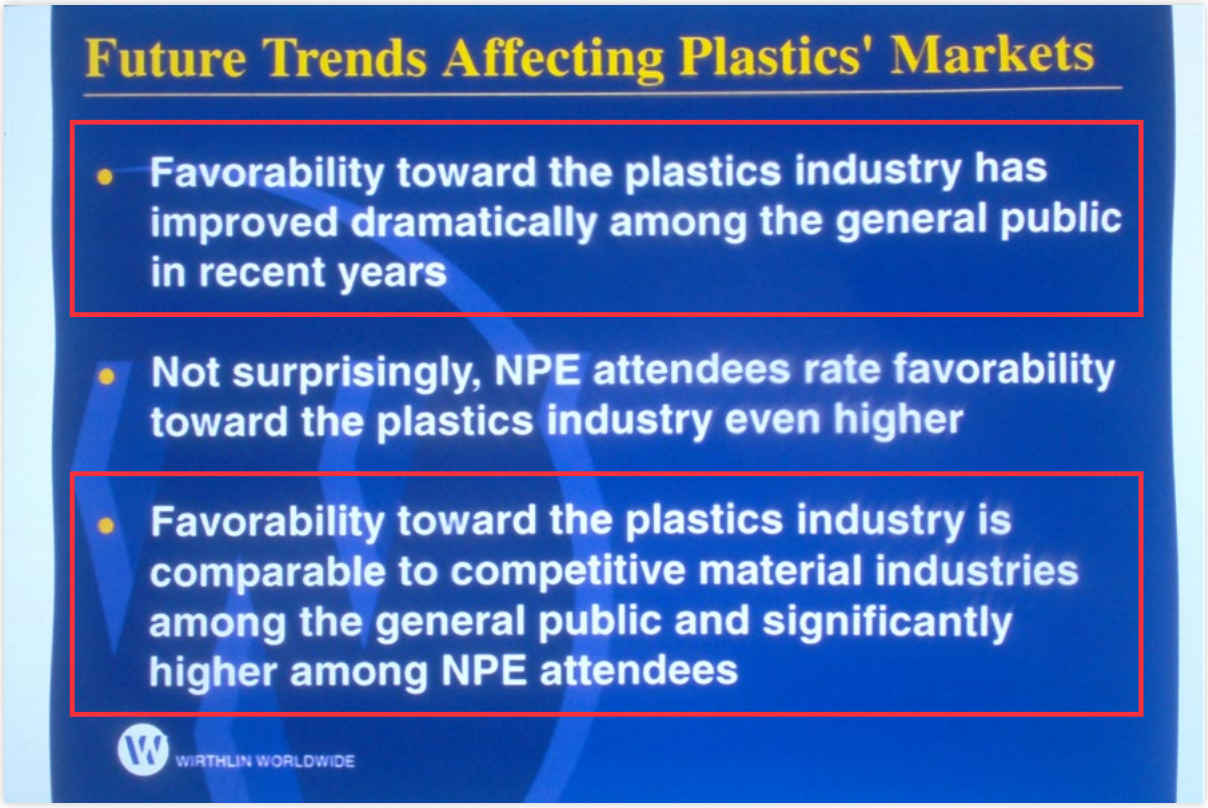
OPTIONS for Increasing Recy rate in OR
9 OPTIONS

- No agree w/ counties
- No long-term commits.

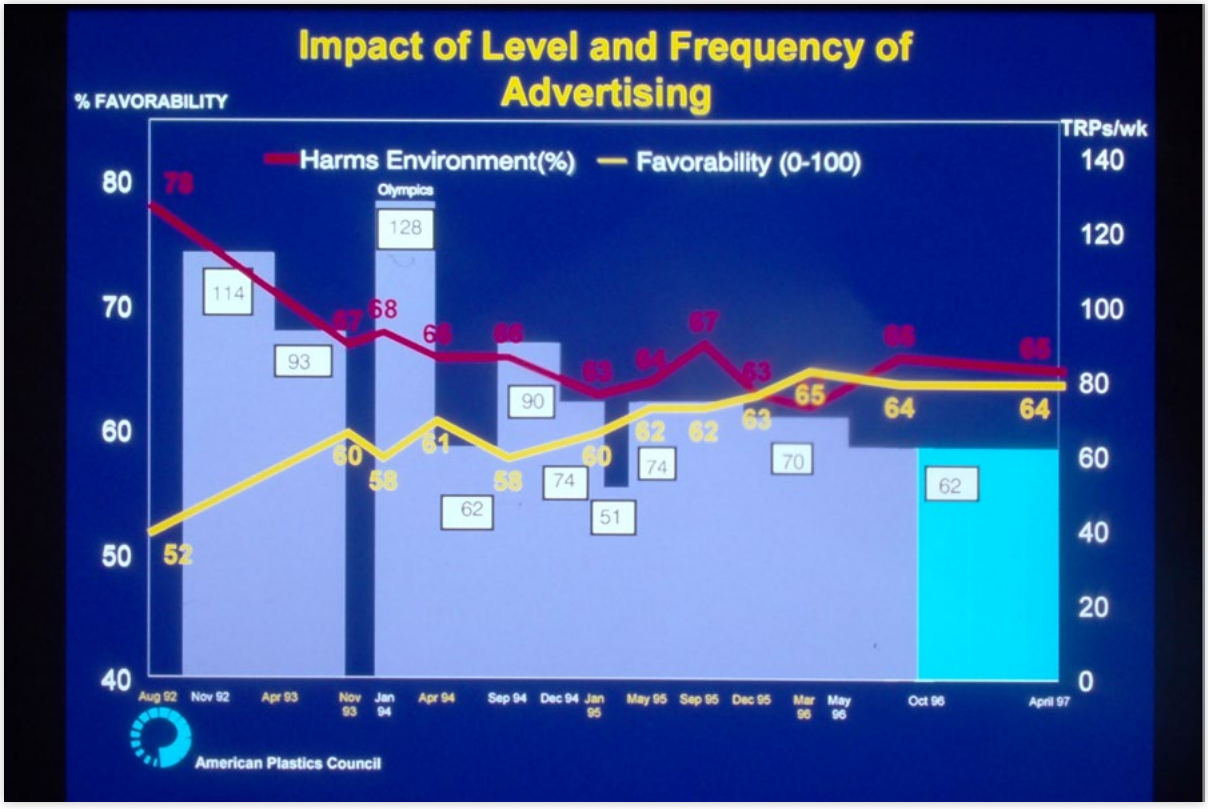
Equipment to BRI - Dirty MRF
- won't happen
- Increase amount of milk jugs being collected

Our progress in OR is being closely watched by grocery mfrs & they use this information themselves legally in the state of OR

Meeting w/ DON, CJV & Simmons to discuss these things



CCI #56.13 (emphasis added)



CCI #56.21

Resource Management Options, Plastics, and the Plastics Industry: Views of APC's Target Audiences

May 1997

CAMBRIDGE REPORTS RESEARCH INTERNATIONAL

955 Massachusetts Avenue, Cambridge, Massachusetts 02139

Phone: 617-661-0110 Fax: 617-661-3575

Executive Summary

Resource Management Options

Recycling remains the most favored resource management option among media, government, and customers. In fact, the number of those in the media who rate recycling as the highest waste management priority has steadily increased since 1995. Those in the waste management industry, however, have had a change of heart in terms of resource management priorities. While in the past WMI respondents have rated recycling as the highest priority, this year source reduction, or using less material to make a product in the first place, is rated as the most important. In the past, customers have traditionally favored source reduction as well as recycling, but their opinions shifted this year as well—toward recycling.

Recycling, conserving energy, reuse, waste prevention, and source reduction are all seen as essential to resource conservation and environmental protection. Waste management representatives rate conserving energy as the most essential out of the resource conservation methods asked about. And only 66% of WMI rate recycling as absolutely essential—down 15 points from 1996. Moreover, the number of customers who think source reduction is absolutely essential in conserving natural resources has dropped as well—from 63% in 1996 to 47% this year.

Not surprisingly, recycling continues to be seen as the best use of a community's time and money for resource management by the media, government, and customers. Waste management respondents cite waste prevention as the most important community priority. Using fuel pellets to produce electricity

CCI #34.2 (emphasis added)

as a resource management option is somewhat of a higher priority for customers. All target audiences consider fuel pellets to be a higher priority this year than they were last year.

All target audience groups are nearly unanimous in agreeing that waste prevention is just as important as disposing of waste in the end, and there has been little change in their views over the past 3 years. Nevertheless, the number of those who strongly agree with this idea has dropped for all groups except WMI, for whom the number of strongly agree responses has increased. Waste management respondents are the most likely of the target audiences to agree that communities should be able to tailor their own solid waste disposal solutions, while government is the least likely to hold this opinion.

Resource Management Options: A Closer Look

Customers, waste management representatives, and government are less likely this year to think that recycling programs pay for themselves. At the same time, the media are more likely to think recycling is financially self sufficient, however. When asked to assume that community recycling programs do not pay for themselves, pluralities of all four target audiences point to consumers as the group responsible for contributing money needed to sustain local recycling programs. And when told that more material is collected through recycling than manufacturers can actually use, half of the media, government, and WMI think manufacturers should be required to use more recycled materials even though consumer prices could increase as a result, while a majority of customers disagree with this idea.

Roughly three-fifths of each target audience group think the best method of paying for household waste removal is a per household fee for garbage collection based on the number and weight of trash cans put

A STATE-OF-THE-ART STUDY OF THE PYROLYSIS OF SOLID WASTES

Report to

Combustion Equipment Associates, Inc.

July 1973

C-75465

Arthur D. Little, Inc.

C. SEWAGE SLUDGE

At the present time sewage sludge is disposed of in one of the following ways:

- Incineration in a hearth furnace or fluid bed with or without supplement fuel;
- Anaerobic digestion to produce a stabilized sludge and methane, a fuel substitute;
- Air drying to produce a soil conditioner; or
- Wet oxidation by the Zimpro process to produce a stabilized sludge.

These methods of disposal are estimated to cost $14-20 per dry ton of solids (25). In view of the large amount of water contained in the sludge (65-80%), the yield of usable fuels is expected to be very low, or even zero. Under these conditions it would be difficult for pyrolysis to compete economically with the above process. As water contents are decreased, or when sludge is disposed of in conjunction with MSW, pyrolysis may look more attractive but opportunities appear limited at present.

D. PLASTICS

The great majority of plastic materials is disposed of as an integral part of MSW, of which it presently constitutes 2 to 3% by weight. (This fraction is expected to increase to 5% over a period of several years.) Plastic wastes disposed of in the United States are present in the following percentages (26):

54%	polyolefin
20%	polystyrene
11%	PVC
15%	other (including cellulosics)

As a constituent of MSW that could be pyrolyzed by a process such as Garrett's, plastics are most acceptable, since the net effect of their presence would be an increase in the quality (heating value) of the pyrolyzer product.

To utilize the ability to pyrolyze plastics to given products (e.g., monomer, wax, crude-type oil) of high chemical value, however, a source of very pure (but possibly mixed) plastic feed would be necessary. Separation of plastics from MSW is neither technically nor economically feasible at the present time, and probably

CCI #782.49 (emphasis added)

will not be in the future. Other sources of pure plastics are too small, for the most part, to sustain a pyrolysis operation and are separated too widely to allow collection and common processing (27). For example, the approximately 100 x 10^6 lb/year of wire insulation waste is divided up among some 15 wire-stripper companies, the largest of which generates roughly 30 x 10^6 lb/year. This figure corresponds to a processing rate of approximately 40 TPD. This rate is unacceptably low for economical operation of a typical municipal refuse pyrolyzer (2000 TPD minimum) by a very large factor, and thus unacceptably low for a plastic pyrolyzer by a smaller, but still large factor.

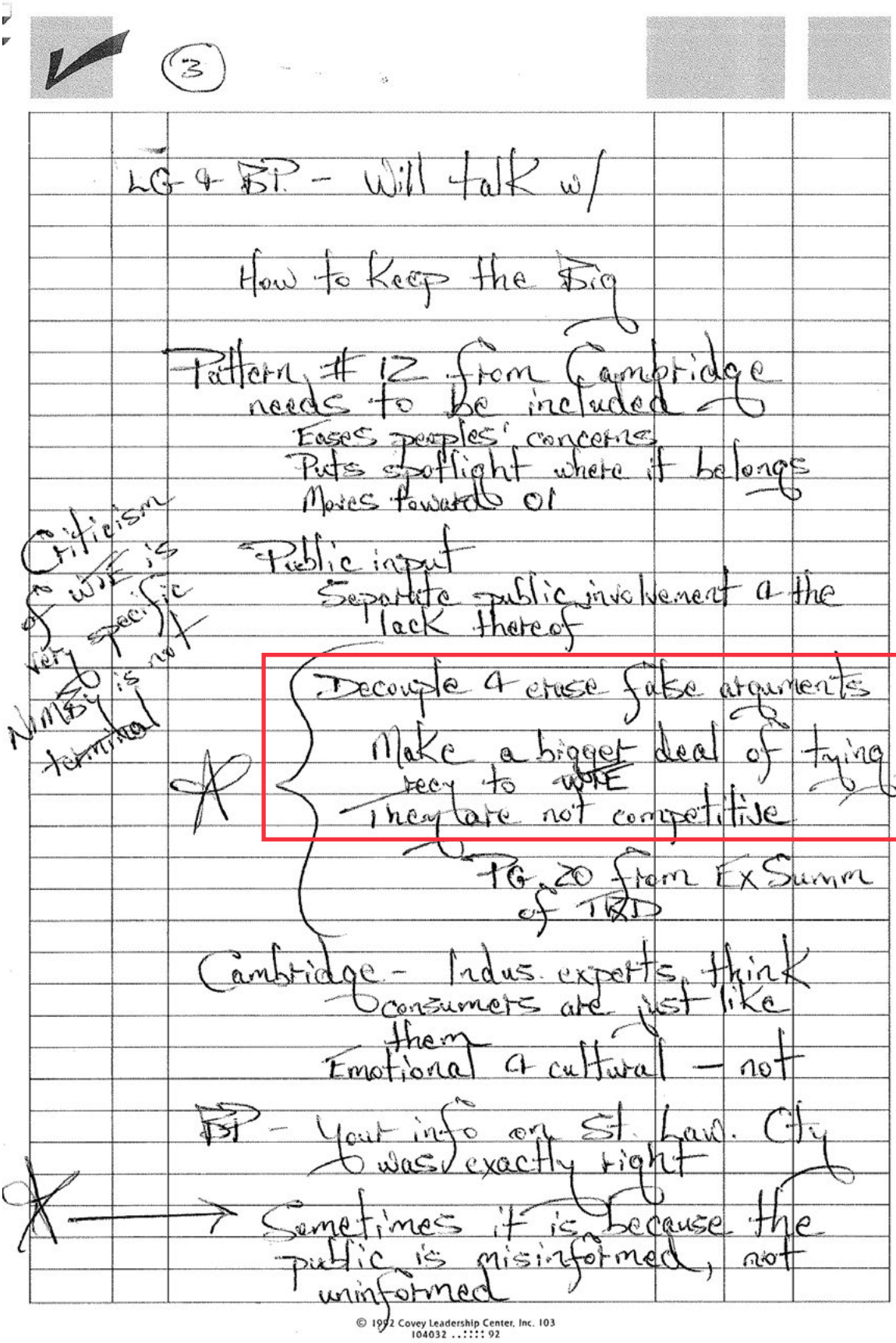
In addition, many of the sources of relatively clean plastics are the fabricators and converters which presently successfully recycle a large fraction of their scrap, and thus have no incentive to supply scrap for pyrolysis. Other sources of plastics waste are also small and are reclaimed as indicated:

Waste	Amount (lb/year)	Presently Reclaimed (?)
Plastics Available from Reclaimer		
LDPE from composite	15 x 10^6	Yes, by hydropulping (15 companies)
LDPE from carton manufacture	43 x 10^6	Yes, by hydropulping (15 companies)
Insulation from wire stripping	100 x 10^6	Partially (15 companies)
Plastics Available from Fabricator or Converter		
Co-extrusion (2-plastics)	10 x 10^6	Recycle
PVC fabric from fabricator	28 x 10^6	Recycle
PVC fabric from cutter	100 x 10^6	Recycle

In general, then, plastics do not appear to be a good candidate for pyrolysis, except insofar as they are a constituent of MSW.

E. TIRES AND OTHER RUBBER PRODUCTS

Of the 10.7 x 10^9 pounds of rubber products produced in 1968, approximately 10.3 x 10^9 pounds will become a disposal problem. Tires account for 6 x 10^9 pounds of the disposed wastes, and are presently reused to the extent of 1.95 x 10^9 pounds by the retreaders and tire splitters. Presently, only 30% of the waste tires available are collected, but the system in operation could be quite easily expanded to include most of the remaining 70% (28). This yearly rate of tire disposal corresponds to a total daily rate of only 8400 TPD. However, tire pyrolysis is expected to be no less expensive than that of MSW, so that this total



3

LG + BP - Will talk w/

How to Keep the Big

Pattern, if IZ from Cambridge needs to be included
Eases peoples' concerns
Puts spotlight where it belongs
Moves toward 01

Criticism of WTE is very specific
NIMBY is not terminal

Public input
Separate public involvement & the lack thereof

Decouple & erase false arguments

Make a bigger deal of trying recy to WTE
They are not competitive

Pg. 20 from Ex Summ of TRD

Cambridge - Indus. experts, think consumers are just like them
Emotional & cultural - not

BP - Your info on St. Law. City was exactly right

Sometimes it is because the public is misinformed, not uninformed

CCI #79.175 (emphasis added)

[redacted] [redacted]

4

To sell WTE -

Don't want to compete nuances of risk
But you have to discuss the hazard before you get to benefit

People buy technological progress

Audience - Influentials & waste mgmt. policy makers

May Scien. Amer. - Biological origins of Homosexuality

Scientific American - Excepting Tech. Review

Discover more for general consumers

A technical presentation in a popular style

LG could help us

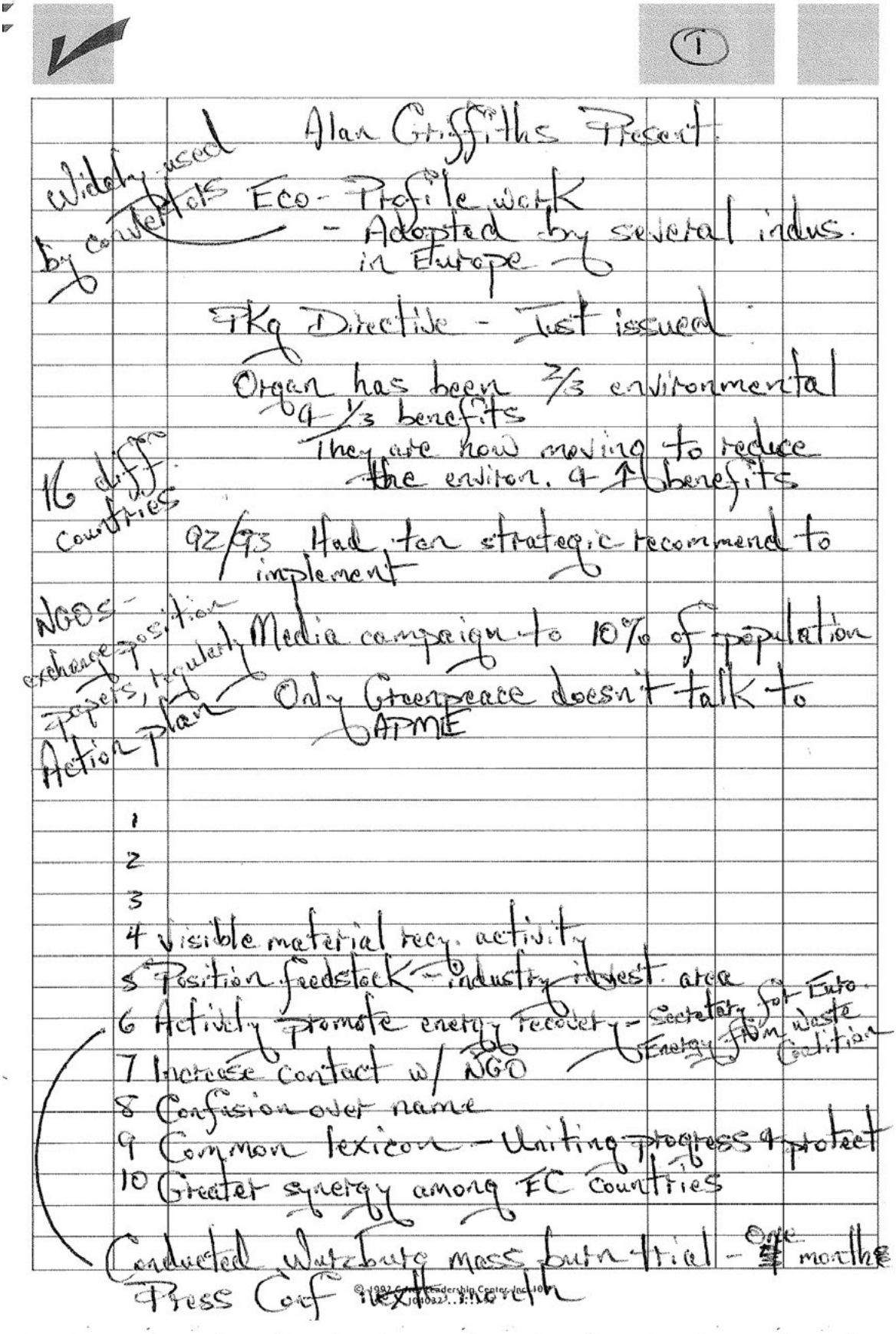
Don Ritter has 9 congressmen on his group NETI

Chamber Commerce

Harvey Alter - snitty remark in annotated biblio.

God's Group if Sup Ct screws up

Where is Walter Schaub?



Alan Griffiths Presen.

Widely used by cons. Eco-Profile work
- Adopted by several indus. in Europe

PKg Directive - Just issued

Organ has been 2/3 environmental 1/3 benefits
They are now moving to reduce the enviro. & ↑ benefits.

16 diff countries

92/93 Had ten strategic recommend to implement

NGOs - exchange position papers, regulat. Action plan

Media campaign to 10% of population

Only Greenpeace doesn't talk to APME

1
2
3
4 Visible material recy. activity
5 Position feedstock - industry invest. area
6 Activity promote energy recovery - Secretary for Euro. Energy from waste Coalition
7 Increase contact w/ NGO
8 Confusion over name
9 Common lexicon - Uniting progress & protect
10 Greater synergy among EC countries

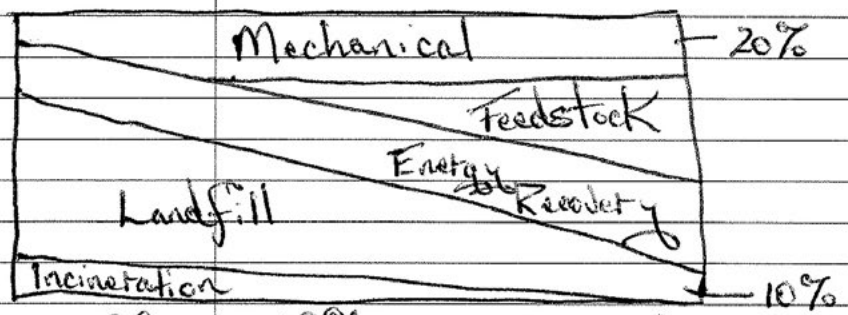
Conducted Wutzbutg mass burn trial - One & months
Press Conf next month

[redacted] [redacted]

(2)

Neste - Finland.

Create more HCl w/ PDF



~~Energy~~ Recovery 50 - 60% max ć 5 yrs.
25% minimum to 45% max recy w/ min 15% for each material

Both mechan & feedstock accepted as recy

WtE ~~&~~ viewed as recovery

1993 - Integ. Resource Mgmt

1994 - Uniting Progress & Protection
- ~~Environmental~~ Protection
- Social benefits

What are other options? → Coalitions
- Pkg Chain Forum ć 20 companies presented their position on pkg.

[redacted] [redacted]

(1) NOTES

AG CONRAD MTG

1/24/94

- Two Key issues - Media
  Next Steps

Legal Avenues
Opinions structure
Products are for ER

~~under statute~~
~~Can't be both ER & recycling~~

Used for its heat content - gases

This is contestable } He is saying that energy recovery ~~products are not products~~ but energy

Nothing in statute says can't be both

CA statutes - Transformation technologies

Question as to some or all being given credit for recy.

Plastic is only one in rulemaking process

1) Do nothing
2) Seek to ~~affect~~ rulemaking @ DEQ
3) Declaratory judgement
   - State Court
   - Expedited basis
   - Negotiate, good basis
4) Question constitutionality

NOTES

Does it unreasonably interfere w/ commerce

(2)

- It does affect commerce - this is int'l issue
- Supreme Ct. - very favorable in striking down restrictive state leg.

Overview of Clean WA Center
DAVE DOUGHERTY - Publically supportive
RON GRUNICH w/ Al Swift

3) Declaratory Judgement
- Who is right
- Tires get credit for recy, why not us

Plastics too light a so won't work for them

(Counties can get credit for diversion but not recycling)

- Court won't lend much credance to legis. history
- Will go to appellate court
- Probably 18 days to reach decision

The heart & soul of decision is that fuel products are not recycling

- Need a balanced presentation to the Board
- Lawyers will agree upon facts

If WA joins OK in this, then the 4th option is useful

OPTION 4 only happens after Option 3

CCI #79.19 (emphasis added)