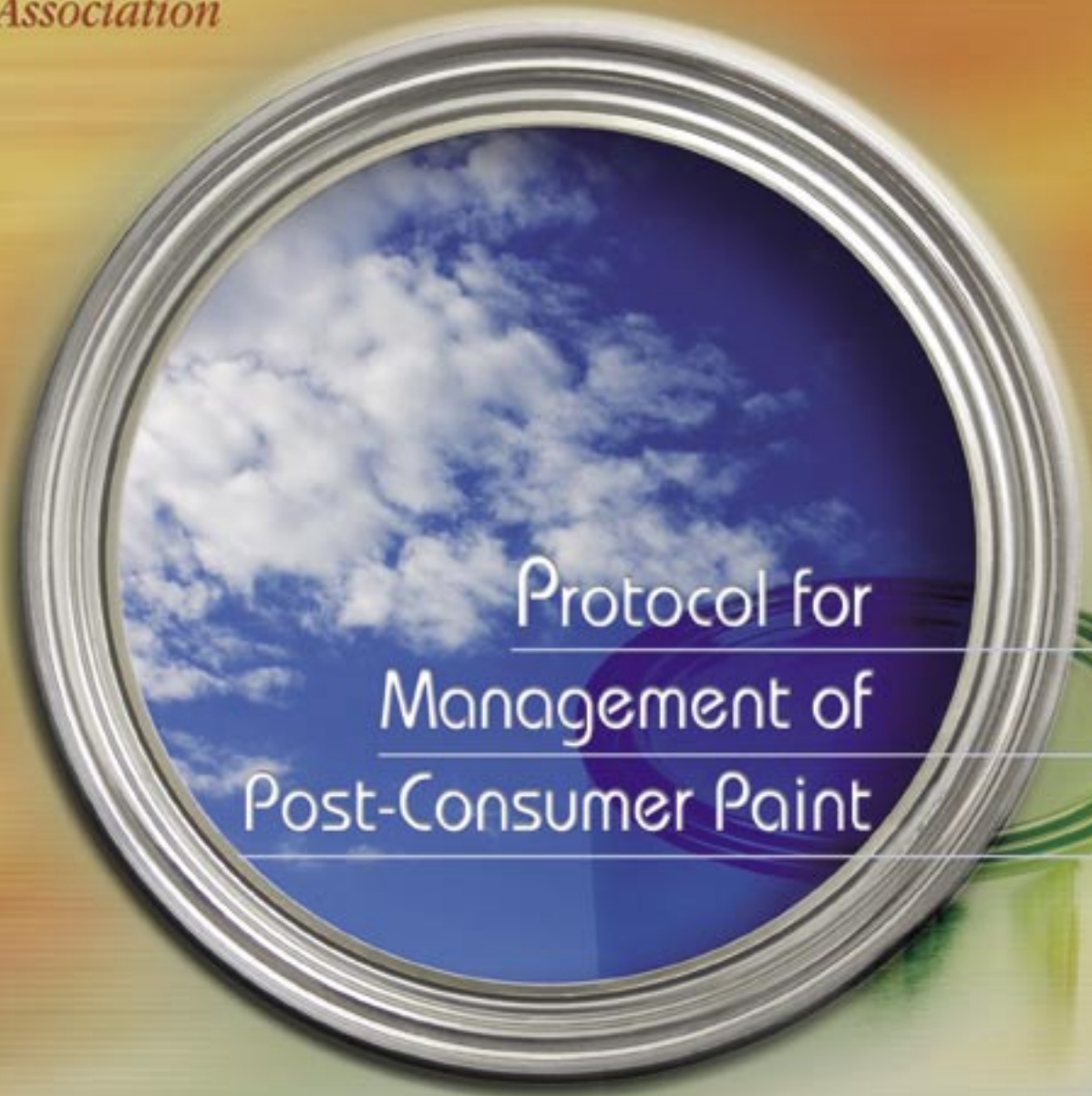
National Paint & Coatings Association



Protocol for Management of Post-Consumer Paint

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Table of Contents

Executive Summary

The development of effective, economical programs for the proper management of post-consumer paint is in the best interests of the public and the paint and coatings industry. The purpose of this protocol is to offer several options for achieving cost-effective, environmentally friendly results.

Three major levels or types of household hazardous waste (HHW) programs have been identified: permanent site collection; day or event collection; and those which feature no collection efforts but rely instead on other methods to manage household hazardous waste. The protocol proposes to offer a model to fit each of the three main categories.

*Central to the success of any household hazardous waste program is the realization that leftover latex paint — which accounts for a significant percentage by volume of all wastes collected — need not be considered a hazardous waste.**

It is important to emphasize the critical part to be played by the consumer in post-consumer paint management. Education of the consumer about the proper methods of managing leftover paint is of critical importance. To assist in this process, NPCA's "5 Point" Program, which has been endorsed throughout the country, can serve as a consumer education model. The "5 Point" Program is contained at Appendix A. NPCA also has the "5 Point" Program brochures available at www.paint.org as well as this document and the "Guidance Manual for Paint Reuse Programs."

The National Paint and Coatings Association is a voluntary, nonprofit trade association representing some 400 paint and coatings manufacturers, raw materials suppliers and distributors. NPCA would like to thank its members on the Post-Consumer Paint Management Steering Committee of the Architectural Coatings Committee for contributing much time and expertise in the development of this protocol.

* Recent study results by DynCorp Environmental Health and Safety Services demonstrated that latex paint products tested in accordance with federal Environmental Protection Agency-sanctioned testing procedures and protocols, "would not be considered a 'hazardous waste.'" For details, please see Appendix B.

Part I

Education

Education of consumers is at the core of any effort to cost-effectively manage post-consumer paint. Therefore, regardless of whether a municipality chooses to manage paint via permanent site collection, day or event collection, or relies on non-collection methods, education should be a key aspect of the program.

Education should focus on the following key facts:

A. Latex Paint is Not a Hazardous Waste

Underlying the protocol's recommendations is this basic and important fact: **today's** *latex paint is not a hazardous waste, and doesn't need to be treated as such.*

A research report released in March of 1997 demonstrated that latex paint is, in fact, not a hazardous waste. The study, conducted by DynCorp Environmental Health and Safety Services of Reston, Virginia, included an independent laboratory analysis of 16 representative consumer latex paint samples. The results of this analysis demonstrate that these latex paint products would not be considered a "hazardous waste," according to procedures and protocols listed in Environmental Protection Agency (EPA) documentation, specifically 40 CFR, Subpart 261 20-24.

In accordance with EPA standards, the latex paint products were tested for ignitibility, corrosivity, reactivity and hazardous constituents — including metals, volatiles, semi-volatiles, pesticides and herbicides — and were confirmed as not meeting any of the requirements to be considered a hazardous waste. Paints tested included a representative sample of latex paints, including flat, semi-gloss, satin, other non-flat paints, in both interior and exterior formulations. (For details, please see Appendix A)

In Canada, the Canadian Paint and Coatings Association ran leachate tests on representative samples of post-consumer paint to determine whether properly dried latex paint could be landfilled. Post-consumer paint was collected from two locations, Trenton, Ontario, and Sherbrook, Quebec. The results: all samples "easily passed" the relevant leachate tests — by a wide margin. (January 8, 1997 *Environmental Bulletin*, Canadian Paint and Coatings Association.)

B. Additional Key Facts for Educating Consumers

1. Consumers should buy only the paint they need.

Consumers should be encouraged to buy only the paint they need, reducing the chance of having any paint left over in the first place. Source reduction is the best way to avoid having a paint disposal problem. This concept of source reduction is becoming increasingly familiar to consumers, and should be emphasized as a key component of any efforts to manage leftover paint.

2. Consumers can store the paint properly so it lasts for years.

Consumers need to be reminded that, unlike other products that end up being thrown away, leftover paint is not a waste product. When properly stored, paint can last for years, until it can be used up. Consumers can be instructed to

- cover the opening with plastic wrap,
- make sure the lid fits securely so the paint doesn't leak, and
- store the paint can upside down. The paint creates a tight seal around the lid, keeping the paint fresh until it's needed again.

3. Paint isn't meant to be thrown away. Consumers should use up leftover paint.

Consumers should also be reminded that properly stored leftover paint can be used on touch-up jobs and smaller projects. Smaller quantities of similar colors of latex paint can also be blended

and mixed for use as a primer on larger jobs, or jobs where the quality of the final finish is not critical.

4. Leftover paint can be donated or exchanged.

Consumers who can't use their leftover paint should also be encouraged to donate it to community groups, theater groups, schools, churches and others who need or want it, perhaps even enjoying a tax deduction from their charitable donation. Consumers can also be encouraged to participate or get involved in neighbor-to-neighbor or community-wide paint exchanges/ paint swaps.

5. Consumers should understand the acceptable ways to dispose of paint that is not usable.

Consumers who cannot save, use up, donate or exchange their leftover paint, can be informed of how to, as a last resort, dispose of the unwanted leftover paint properly. Providing proper disposal instructions and making it clear that methods are different for latex and solvent-based paints is particularly important if leftover latex paint is to be removed from the household hazardous waste stream.

Consumers can be instructed to air dry leftover latex-based paint *away from children and pets*. One method is to pour the latex paint into a paper box or bag, and add absorbent material such as shredded newspaper or cat box filler to speed drying. The dried paint can be thrown away with normal trash, and the empty, dry steel can may be collected at curbside or elsewhere for steel recycling. ***Disposal of liquid latex paint in the normal trash or via storm sewer is not recommended.***

Note: *the State of California and certain counties in Washington and Minnesota may require special* disposal considerations for latex-based paints, so be sure to check.

For solvent-based paint, air drying liquid solvent-based paint is generally not recommended, but if the paint has **become completely** solidified in a closed can, consumers can dispose of it in the regular trash. Liquid solvent-based paint should not be discarded with normal trash, but rather saved for a special paint collection program or household hazardous waste program.

Note: While this protocol does not specifically address the proper management of paint thinners, mineral spirits and other household paint products, it is important to note that these products should be treated and disposed of like solvent-based paints, especially with regard to necessary precautions and safety considerations. (Consumers should also be informed that paint thinners, mineral spirits and turpentine can be reused by letting the solid paint particles settle to the bottom of the container before decanting the clear liquid into a clean, closed container. If the liquid is decanted into a container different from its original container, then the new container should be clearly labeled and kept away from the reach of children.)

6. There are simple ways to know how to tell latex from solvent-based paint.

It is essential that consumers know how to tell latex from solvent-based paint. Consumers can be instructed that one way to tell the difference is by reading the label. For solvent-based materials, often the term "alkyd" or "oil-based" appears on the label. Cleanup instructions on the label are also a good way to tell whether a product is solvent-based. If the label says to use mineral spirits or turpentine to clean brushes or rollers, then the product is typically solvent-based. If brushes or rollers can be cleaned with soap and water, it is typically latex, or water-based, paint. If the label is missing or unreadable, the product should be assumed to be solvent-based for the purposes of proper disposal. Another simple way to tell is to determine the paint's solubility in water. A small amount in a jar or cap mixed with water will show whether it is latex or solvent-based paint. Latex paint readily mixes with water since it is water-based — it becomes thinner as water is added. Solvent-based paint is insoluble in water — the paint and water separate like vinegar and oil.

Part II

Waste Management Programs

A. Key Approaches

Municipalities have many different types of programs currently in place to manage household hazardous waste. Most municipalities, however, practice one of three major approaches. Two of these methods rely on collecting paint as part of the collection process:

Permanent Site Collection: To increase convenience and community participation in household hazardous waste collection programs, more and more permanent collection sites are being established at fire stations, landfill sites or at locations on county/state property. Although sometimes more expensive to operate than event or one-day collections, programs involving permanent collection facilities tend to be more effective than one-day collection events because they allow people to drop off household hazardous waste at their convenience.

Day or "Event" Collection: A community collection day event is the most common approach to household hazardous waste management. On collection days, community members are invited to deposit household hazardous waste at specified collection centers and locations for reuse, recycling, treatment and disposal by experienced waste handlers. Advanced planning, coordination, promotion and education for these events are very important. Additionally, some communities implement special, one-day mobile collection events where household hazardous wastes are collected throughout a neighborhood rather than having consumers drop off their household hazardous wastes at designated sites.

Non-Collection: Some jurisdictions do not hold permanent or event collections, and instead manage household waste through more educationally and less process-oriented methods.

The paint industry's protocol offers options for managing leftover paint using both collection and non-collection based approaches.

B. Collection Process

When a municipality chooses to collect household hazardous waste via a permanent site or collection event, the following recommendations apply to the process.

1. Don't collect latex paint as a household hazardous waste.

As noted earlier, **today's** latex paint is not a hazardous material; and from an environmental and health perspective, it need not be included in the hazardous waste stream. A main thrust of educational efforts should then emphasize explaining to consumers and program workers how to determine the difference between latex and solvent-based paints, so only solvent-based paints are collected. For more specific suggestions regarding education when latex paint is not collected, please refer to section C, Managing Waste Without a Formal Collection Program on page 6.

2. Collect only solvent-based paints.

Once solvent-based paint is collected as a household hazardous waste, there are two basic options for their disposition:

- *Recover energy content by contracting with cement kilns, etc*. Cement kilns can use waste solvent-based paints as fuel sources provided they have a high enough BTU value. Solvent-based paints that are collected should be consolidated into 55-gallon drums and tested for heavy metal content using EPA's Toxicity Characteristic Leaching Procedure (TCLP). Paint that passes TCLP can be shipped to permitted cement kilns or fuel blenders for reuse in energy recovery programs. This is the most effective, safe and environmentally desirable way to dispose of waste solvent-based paints that cannot be reused.

- *Dispose of as a household hazardous waste through a licensed contractor*. Many paint collection and disposal programs today are, in part or wholly, operated by professional solid and/or hazardous waste management personnel. Contractors may be hired by the local community to run the entire waste collection program or they may be hired for any step along the process for reuse and disposal. It is advisable to contact several local, regional or national waste management professional contractors to discuss possible joint assistance in handling leftover solvent-based paint. (*See also* Part III regarding Contractors, starting at page 9.)

Important Note: An essential part of any paint collection program is safety. Please see Part III, Section F (Liability Issues), page 11 and Appendix D (Health & Safety Factors to Consider When Starting a Paint Collection Program, page 35).

3. If the choice is made not to collect latex paint, plan to implement educational efforts.

If a municipality, recognizing that latex paint is not a hazardous waste and the cost-savings that result from removing it from the hazardous waste stream, chooses not to collect latex paint, education becomes an essential part of the overall program.

Education should focus on delivery of the following messages to consumers:

- Latex paint is not a hazardous waste;
- Consumers should buy only the paint they need;
- Consumers can store the paint properly so it lasts for years;
- Paint isn't meant to be thrown away — consumers should use up leftover paint;
- Leftover paint can be donated or exchanged;
- Consumers should understand the acceptable ways to dispose of paint that is not usable; and
- There are simple ways to know how to tell latex from solvent-based paint.

Charitable organizations and other potential recipients of donated paint should be educated as to how to best encourage/request donations from citizens.

As part of the protocol, a variety of information and materials is available to aid in delivering these messages, and is presented in the protocol's Toolkit (*see* Part VI).

4. If collecting latex paint via permanent site.

When collecting paint at a permanent site, there are some important factors to consider:

Promote the Collection Effort and Paint Available

The success of collection efforts and the disposition of paint after collection depends on finding a steady market for the leftover paint, whether in original cans, or consolidated/re-blended. This can be accomplished via several means:

- advertising and education focusing on the collection, and the availability of paint for use; and
- searching out and creating networks for organizations/groups who will be regular customers (i.e., anti-graffiti programs, Habitat for Humanity, etc.) (*See also* page 13 for a sampling of organizations which might seek donated paint.)

Sort into "Usable" and "Unusable" as it is Received

Paint should first be inspected to make sure it is still usable. While there is no standard determining factor, many communities consider leftover latex paint reusable if at least one-third of a gallon remains in the original container, the label is intact, and the paint has not been frozen or contaminated. (*See* below and page 38 for more tips on sorting and consolidating paint.)

Solvent-based or alkyd paint is generally not a good candidate for reuse because of issues of complexity and incompatibility as well as other paint formulation considerations. Consolidation for eventual use in a fuel-blending program is more feasible.

After Collection, Consolidate Paint for Further Reuse

Consolidation of latex paint is a key way to reuse latex paint that is in good condition. This process is relatively inexpensive to implement and may effectively reduce the volume of latex paint for disposal by as much as 50 percent or more.

Once post-consumer latex paint is collected via various household hazardous waste collection methods, it can be consolidated into 55-gallon drums by municipalities or their licensed waste management professionals.

When consolidating latex paint for reuse, it is advisable to sort paint into light colors and dark colors in separate 55-gallon drums to obtain either a light beige or dark brown mixture. Alternatively, paint can be further sorted into pastel colors and dark colors. Filtering is recommended to remove large particles and other solids from the paint.

Testing should be done to ensure that the consolidated latex paint is not contaminated with mercury, pesticides, bacteria or other contaminants, and that it meets the requirements of the Occupational Safety and Health Administration (OSHA). If testing is not performed, it is advisable to label the paint for "exterior use only," since paint manufactured prior to 1991 may contain mercury. (The paint industry, working with the EPA, voluntarily ceased using mercury biocides in interior latex paints in 1990 and in exterior latex paints in 1991.)

Once the paint is tested, it can be repackaged into 5-gallon containers and either donated or sold at a nominal cost to local government contractors or community agencies. Paint consolidation generally produces a low-grade 100-percent recycled paint. Generally, every drum or batch of the consolidated latex paint varies slightly, due to variations in paint quality and color. Some communities use this consolidated, latex paint in anti-graffiti campaigns, which can be very successful.

Properly Store Leftover Paint for Future Use

When paint will be stored at a permanent collection facility, it should be stored properly. Just cover the opening with plastic wrap, and make sure the lid fits securely so the paint doesn't leak. Then — and here's the key step — store the paint can *upside down*. The paint will create a tight seal around the lid, keeping the paint fresh until the paint is claimed, or the next exchange is held. When storing latex paint in colder climates, be sure to take steps to prevent the paint from freezing.

Dry and Dispose of Unusable Leftover Latex Paint as Solid Waste

While paint disposal should always be a last resort for leftover paint products, a certain percentage of paint collected will be identified as unusable, or unable to be stored for future use. These products will need proper disposal. Let leftover latex paint air dry — with plenty of ventilation and *away from children and pets*. One method is to pour the latex paint into a paper box or bag, and add absorbent material such as shredded newspaper and cat box filler to speed drying. Recycle the empty can, and then throw the dried paint away with other regular trash. (Note: The State of California and certain counties in Washington and Minnesota may require special disposal considerations for latex-based paints, so be sure to check.)

5. If collecting paint via one-day or "event" collection.

If collection is done via a one-day or "event" collection, there are some important factors to consider.

Promote the Collection Effort and Paint Available

The success of collection efforts and the disposition of paint after collection depends on finding a steady market for the leftover paint, whether in original cans, or consolidated/re-blended. This can be accomplished via several means:

- advertising and education focusing on the collection, and the availability of paint for use; and
- searching out and creating networks for organizations/groups who will be regular customers (i.e., anti-graffiti programs, Habitat for Humanity, etc.) (*See* page 13 in Part III for a sampling of organizations which might seek donated paint.)

Sort into "Usable" and "Unusable" as it is Received

Paint should first be inspected to make sure it is still usable. While there is no standard determining factor, many communities consider leftover latex paint reusable if at least one-third of a gallon remains in the original container, the label is intact, and the paint has not been frozen or

contaminated. (*See* page 4 and 38 for more tips on sorting and consolidating paint.)

Solvent-based or alkyd paint is generally not a good candidate for reuse because of issues of complexity and incompatibility as well as other paint formulation considerations. Consolidation for eventual use in a fuel-blending program is more feasible.

Incorporate and Promote a Paint Exchange as Part of the Collection

The easiest and least expensive method for reusing paint is paint exchange. Paint exchanges are most ideally suited to one-day and event collections, where a "drop and swap" is scheduled as part of the event. Paint exchanges may reduce the total volume of paint for disposal by 25 percent or more with increased community participation.

These usable paints may be donated to local community projects, theater groups, schools, churches and other groups or projects such as anti-graffiti campaigns. In addition, homeowners who want a little paint or a certain color of paint may pick up free paint at these exchanges, which are also referred to as drop-and-swap programs.

Paint exchanges are most efficient when end-users can be identified *before* the paint is collected. In other words, treat the paint as a commodity and act the part of a "broker" by finding customers for the leftover paint. The paint is then transferred directly from the participant to the end-user. Through this system, the municipality reduces the need to store and manage leftover paint.

If latex paint is being collected, it is advisable to label the paint for "exterior use only," because latex paint manufactured prior to 1991 may contain mercury. (The paint industry, working with the EPA, voluntarily ceased using mercury biocides in interior latex paints in 1990 and in exterior latex paints in 1991.)

Properly Store Leftover Paint for Future Use

When leftover paint from a collection event is to be stored for further distribution or a future exchange, it should be stored properly. Just cover the opening with plastic wrap, and make sure the lid fits securely so the paint doesn't leak. Then, and here's the key step: store the paint can *upside down*. The paint will create a tight seal around the lid, keeping the paint fresh until the paint is claimed, or the next exchange is held. When storing latex paint in colder climates, be sure to take steps to prevent the paint from freezing.

Dry and Dispose of Unusable Leftover Latex Paint as Solid Waste

While paint disposal should always be a last resort for leftover paint products, a certain percentage of paint collected will be identified as unusable, or unable to be stored for future use. These products will need proper disposal. Let leftover latex paint air dry —with plenty of ventilation and *away from children and pets*. One method is to pour the latex paint into a paper box or bag, and add absorbent material such as shredded newspaper and cat box filler to speed drying. Recycle the empty can, and then throw the dried paint away with other regular trash. (**Note**: the State of California and certain counties in Washington and Minnesota may require special disposal considerations for latex-based paints, so be sure to check.)

C. Managing Waste Without a Formal Collection Program

1. Focus on education.

Some municipalities do not have formal collection methods, and instead rely on consumer education techniques and informal systems for handling of post-consumer paint and household waste products.

When there is no formal collection process, education becomes even more critical. Again, key messages to deliver to the public include:

- Latex paint is not a hazardous waste;
- Consumers should buy only the paint they need;
- Consumers can store the paint properly so it lasts for years;
- Paint isn't meant to be thrown away — consumers should use up leftover paint;

- Leftover paint can be donated or exchanged;
- Consumers should understand the acceptable ways to dispose of paint that is not usable; and
- There are simple ways to know how to tell latex from solvent-based paint.

As part of the protocol, a variety of information and materials is available to aid in delivering these messages, and are presented in the protocol's Toolkit (Part VI).

2. Encourage "drop and swap" events.

Without formal collection processes and exchange locations, grassroots community "drop and swap" events become an even more important way to encourage reuse of paint, and divert perfectly usable paint from being thrown away.

Local groups such as Kiwanis clubs, Jaycees, schools, Boy/Girl Scouts, etc. can be encouraged to sponsor or co-sponsor "drop and swap" events.

The Toolkit (Part VI) features a flyer, "Organizing a Community Paint Exchange — Guidelines for The Public," that can be useful in this effort.

3. Work to encourage donation/reuse networks for citizens to contact.

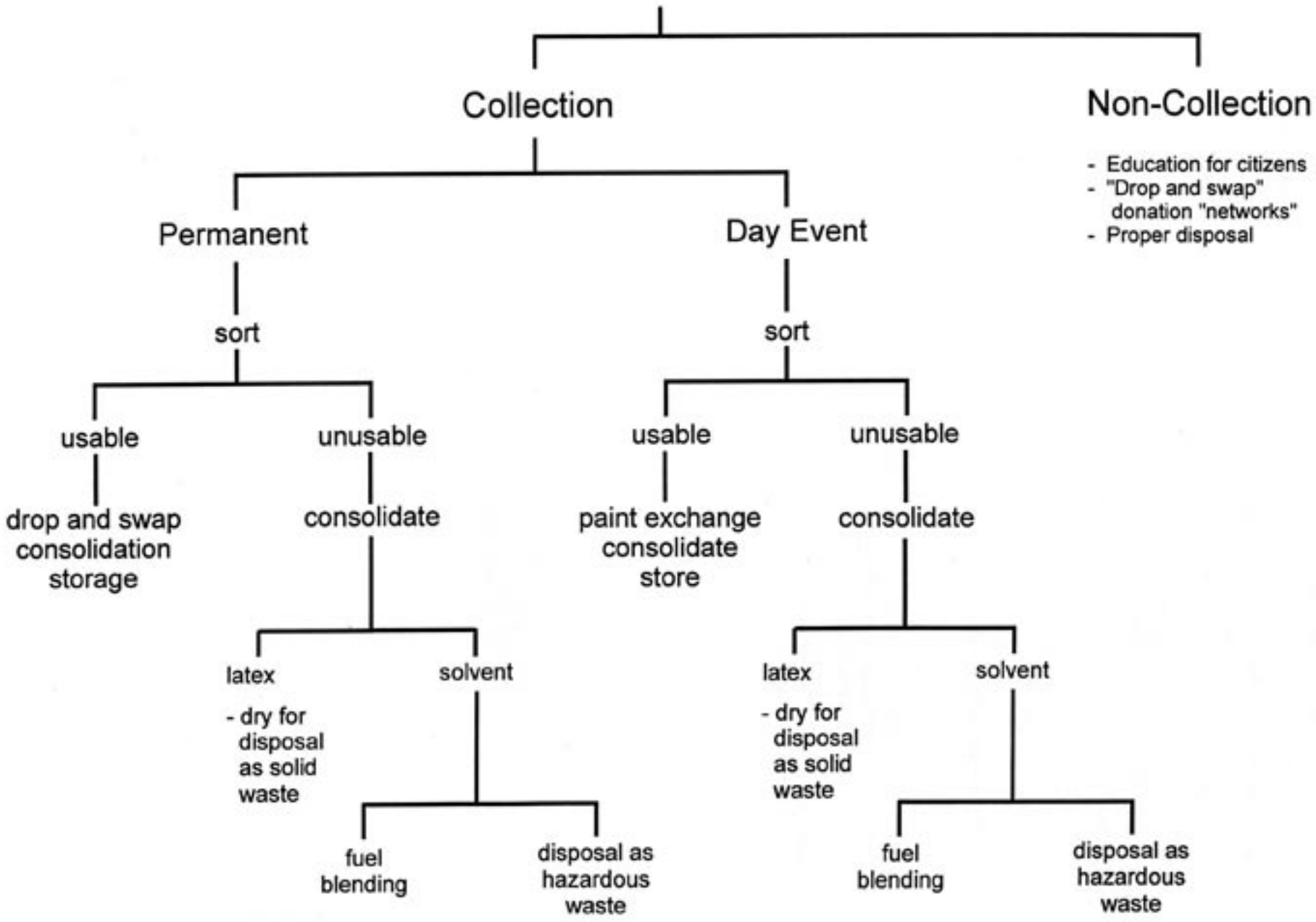
Without formal collection processes and exchange locations, it is also important to encourage and help to promote networks that citizens can contact regarding donation of usable leftover paint. *See* Part III, H. Paint Management, (page 13) for a sampling of organizations which might seek such donations.)

4. Consider curbside collection.

Curbside collection programs are being tested by a limited number of communities. Such programs are designed to provide service to disabled residents, senior citizens and others who are either unable or unwilling to pack and transport leftover paint to permanent or event sites. Contractors performing curbside collection can direct collected paint to organizations seeking paint, paint exchanges, consolidation facilities, or, as a last resort, proper disposal.

For more detailed information on Paint Reuse Programs, such as paint exchanges, donation, and consolidation, please see the "Guidance Manual for Paint Reuse Programs" at www.paint.org.

D. General Protocol — Managing Leftover Paint



Part III

Cost Considerations: Dealing With Household Hazardous Waste Contractors

The goal of this section is to provide assistance in the effective and economical use of household hazardous waste (HHW) contractors for the collection, use and disposal of leftover paint. Key contractor issues include prequalification, procurement options, cost considerations, liability issues and selection.

A. Background Information

Government and private organizations (sponsors) should gather background information on the community in which the collection program is to occur. Information may include the population of the collection area, the number of households, and any information on historic paint collections (participation, waste types and amounts). This information should be included in the Request for Proposals (RFP) and Request for Bids (RFB) in order to assist the contractors in developing estimates of the costs associated with the collection program.

The organization should also select the anticipated collection program type, schedule, location, types of leftover paints to be accepted and hours of operation. Each of these factors should be identified prior to soliciting proposals or bids from contractors. As mentioned earlier in the protocol, latex paint is not a hazardous waste (except in California) and does not need to be collected during the HHW collection program.

B. Defining Responsibilities_

Contractor cost considerations depend greatly on the contractor's collection program responsibilities. A government or private organization may hire a contractor to complete the entire collection program or only portions of the program. However, it is very important that the roles be clearly defined. Potential responsibilities may include one or more of the following:

- Development of operations plan/emergency contingency plan/health & safety plan;
- Personnel training;
- Obtaining permits and licenses;
- Development and implementation of public outreach program(s);
- Purchasing equipment and supplies;
- Site setup;
- Traffic control;
- Accepting leftover paint;
- Paint characterization and sorting;
- Paint bulking and blending;
- Sampling and analysis;
- Repackaging;
- Security;
- Transportation;
- Paint management; and
- Preparation of paperwork and summary reports.

C. Procurement Options — Request for Proposal (RFP) or Bid (RFB)

Generally there are two methods of procuring contractor services — requests for proposal (RFP) or requests for bid (RFB). Each method has advantages and disadvantages as discussed below.

Request for Proposals (RFP)

Request for proposals allow an organization to evaluate a contractor on cost, qualifications and technical factors. Not only is the contractor required to provide a cost estimate for the defined services, but the contractor is allowed to be creative in proposing alternatives to reduce program costs (alternative leftover paint management ideas). RFP's are also beneficial for sponsors that have limited or no previous leftover paint collection experience, because the contractor may be asked to submit scenarios that vary regarding sponsor involvement. An RFP drawback: because contractors will provide varying costs and collection proposals, contractor evaluation and contract negotiations may be more difficult than for RFB's.

Request for Bids (RFB)

Request for bids are primarily used when the contractor roles have already been defined by the sponsoring organization and are primarily evaluated on cost alone. The advantage of RFB's is the ease of evaluation and contract negotiation. The disadvantage is that the sponsor has to clearly define contractor roles in great detail.

Considerations:

1. Contractors generally can be more competitive with multi-site and multiyear collection opportunities.
2. Sponsors may wish to include prepared cost tables in the RFB and RFP to ease cost comparison.

D. Contractor Evaluation and Selection

As detailed above, the evaluation of an RFB is generally based solely on cost considerations. However, contractor qualifications (discussed below) and waste management preferences may be incorporated by using cost adjustment factors. RFP's are most easily evaluated by developing a rating system in which values are assigned for various technical and cost criteria. Generally, contractor price, qualifications, waste management options, and environmental compliance are the most sensitive criteria.

Organizations should carefully examine the "low bid" contractor's submittal. Make sure that the contractor is qualified, is in good financial standing, did not inadvertently miss something, or has bid certain tasks excessively low or high (the contractor may know something the sponsor does not). Finally, the contractor staff identified in the proposal should be the same individuals that actually staff the collection event.

E. Contractor Qualifications

Potential contractors should be screened and should meet minimum qualification requirements prior to being awarded the contract. An assessment of a contractor's qualifications may occur prior to solicitation of bids or proposals (prequalification), or may be included as part of the request for proposal (RFP) or request for bid (RFB) documents.

Prequalification is especially important to government organizations that, because of procurement procedures, must procure the "low bid" contractor. Such organizations may find it very difficult to reject unqualified or "risky" contractors once the bids have been solicited. Further, organizations may wish to require prequalification in order to narrow the prospective field of contractors to a more manageable number.

In order to qualify the contractors the following contractor information should be identified and assessed:

- *Experience.* Provide information on the number of HHW events completed or facilities staffed, and provide references.
- *Insurance.* Provide the type and level of insurance the contractor carries (provide copies), and ask whether the contractor will include the sponsor organization as additional insured.
- *Staff.* Request the number and training level of contractor's personnel (provide copies).
- *Financial.* Provide financial strength documentation.
- *Bonds.* Is the contractor willing to secure bid and performance bonds?

- *Compliance.* Request list of violations, fines, enforcement acts, if any, (including subcontractors, and facilities that the waste may pass through for disposal).
    - Will the contractor take ownership of the leftover paint?
    - Will the contractor indemnify the sponsor?
    - Request copies of any required licenses or permits.
    - Contractor should identify proposed subcontractors.

F. Liability Issues

Organizations could be liable for an injury to a leftover paint collection worker, an accidental release of paint at the collection site or during transport, or for unsound paint disposal practices. A properly written contract with an experienced HHW contractor may minimize these potential liabilities. The following recommendations may help minimize potential liability:

Insurance

The contractor should carry the following insurance, provide certificates of insurance (and proof of premium payment) and should add the sponsoring organization as additional insured:

- General liability insurance (covers damage to property or bodily harm);
- Motor vehicle insurance (covers damage caused by vehicles);
- In-transit insurance (covers environmental restoration and bodily harm compensation);
- Pollution liability insurance (covers environmental restoration); and
- Worker's compensation insurance.

Volunteers should be asked to sign a waiver form to prevent liability, since most insurance does not cover volunteers. To ensure that site workers are covered under their individual or employee insurance policies and worker's compensation, consider checking their insurance coverage by using a staff insurance and safety waiver form. The property owner in which the leftover paint collection is to occur may wish to obtain public liability insurance.

The sponsor should ensure that the contractor's insurance coverage remains in effect through the entire waste trail (i.e., it may take several months for waste paint to reach the final disposal facility).

Considerations

An operations plan, a health & safety plan, and an emergency response plan should be completed in order to provide contingency measures for potential emergencies.

A written contract between the organization and contractor should be prepared and signed by both parties. (**Note**: Legal counsel representing the sponsor organization is ***strongly*** recommended.) The contract should include an indemnification clause stating that the sponsor is blameless in the event of contractor negligence, acts of omission, or wrongdoing. The contract should also include and clearly define the following:

- clear definition of each party's duties and responsibilities;
- how costs are to be allocated;
- who takes ownership of accepted leftover paint;
- who is responsible for testing, transportation and disposal;
- who signs the waste manifests;
- price changes;
- subcontractor changes;
- termination and extension;
- changes in contractor or sponsor responsibilities;
- who is responsible for obtaining any necessary permits or licenses;
- collection day contingencies, such as severe weather cancellations;
    - poor and too much participation;
    - radioactive and explosives; and
    - leftover paint that cannot be removed at the end of the collection day.

The sponsor organization may also want to require the contractor to provide a "bid bond" to cover the sponsor for time and expenses in the event the contractor rejects the contract once

awarded, and a "performance bond" to ensure satisfactory performance and, if necessary, the costs of completing the project according to the contract. The sponsor may wish to retain a certain portion of the contractor's payment (10-20 percent) until all documentation from the collection, transport, and disposal is received by the sponsor (certificates of destruction, manifests, etc.). The sponsor may also request that liquidated damages from the contractor be included in the contract terms as a form of remedy that may serve as a pre-negotiated penalty for breach of contract.

The sponsor should also include an escape clause to the contract that allows it to (1) reject all proposals and bids without cause, (2) act on its own best interest, and (3) reject any aspect of the proposal or bid.

Again, because it is impossible for this protocol to cover all possibilities, legal counsel to assist in dealing with these important considerations is strongly recommended!

Contractors should be required to identify subcontractors and sponsors should retain the right to reject subcontractors.

Health and Safety

A health and safety plan and emergency response plan should be prepared (copies should be onsite), and contractors and site workers should be trained to handle hazardous waste. The contractors' workers should have completed at least 40 hours of OSHA's required Hazardous Waste Operations and Emergency Response (HAZWOPER) training which includes eight-hour annual refreshers. The sponsor may wish to require at least one contractor staff person to be trained in first aid and CPR. Copies of training certificates must be available onsite for regulatory agency review. Safety equipment including personnel protective equipment, fire extinguishers, eye washes and showers, phone, and first aid kits should be located onsite. When collections are to occur inside buildings, adequate air movement is needed. Finally, safety meetings should be held at the beginning of each collection to address safety issues.

Security

Leftover paint should be properly and safely stored to ensure that the paint is not vandalized after hours.

G. Contractor Pricing Alternatives

Government and private organizations have a large number of pricing alternatives that may be used in solicitation of HHW contractors. A brief discussion of two common alternatives — price per drum and price per pound are discussed below.

Price Per Drum

Soliciting contractor service costs on a price per drum pricing is the most common method of pricing leftover paint collections. Sponsors request costs per drum for various leftover paint types (reusable latex, reusable solvent based, and non-reusable paint). An estimated number of drums can then be multiplied by the leftover paint type to determine an overall collection cost. Sponsors may wish to separate contractor mobilization and labor costs from leftover paint management costs. This allows the contractor to cover setup costs regardless of the amount of leftover paint collected. With this unknown covered, contractors will generally submit more competitive bids

Advantages. A collection based on a price per drum cost is relatively easy to evaluate and manage since the sponsor can just multiply the number of drums in each leftover paint type by the contractors price per drum.

Disadvantages. When using a price per drum alternative, the contractor has little incentive to fully fill labpacks or consolidate paint drums. In addition, contractors also have little incentive to separate latex paint from solvent-based paints during consolidation, especially if the contractor receives greater pay for solvent-based paint drums. The best defense is to have a knowledgeable representative onsite to oversee contractor activities.

Price Per Pound

In this approach the contractor bases its estimate on an estimated cost per pound of leftover paint. This option can be as simple as paying the contractor one flat rate for all leftover paint, or the payment can be based on the type of leftover paint, and may be based on the "net pound" of leftover paint.

Advantages. This alternative is simplistic in that the leftover paint management payment is based entirely on the weight of the paint collected.

Disadvantages. When using the price per pound alternative, the contractor has little incentive to limit the use of dense absorbents like cat litter. In addition, the sponsor has to ensure that an accurate leftover paint weight measure is taken.

H. Paint Management

Leftover paint, especially latex paint, typically represents the single largest component collected, and disposal of leftover paint generally can have the greatest impact on program costs. The simplest way to reduce costs is to exclude the collection of latex paint. Latex paint is not defined as a hazardous waste under federal regulations and most state regulations. Therefore, organizations may choose not to collect latex paint during collections. Solvent or oil-based paint contains materials identified as hazardous under federal regulations and therefore *should* be collected at HHW collections.

1. Latex Paint

Leftover latex paint is generally not a hazardous waste, and can be treated as any other solid waste for disposal purposes. Disposal options are discussed below.

Paint Exchange/Reuse

Latex paint cans that are unopened or are more than one-third full (and good quality) can be collected and directly donated to organizations for reuse. Giving away unwanted latex paint to someone who can use it is an important means of protecting the environment while at the same time reducing collection and disposal program costs. Governmental and private organizations should consider donating latex paint to organizations such as:

- community organizations (theater groups, fix-up projects, anti-graffiti programs)
- churches
- non-profit organizations (Boy/Girl Scouts, YM/WCA, Salvation Army, Goodwill, Habitat for Humanity, 4H)
- multifamily housing associations
- local, state and federal government building and maintenance departments to meet "recycled" quotas, and departments of transportation for anti-graffiti work
- contractors
- parks
- military bases
- prisons
- fairgrounds, athletic fields, golf courses and stadiums
- fire departments
- schools, colleges and universities
- property management companies

Sponsors may wish to have organizations sign waiver forms upon receipt of donations to indemnify the sponsors from product performance liability.

Consolidation and Reuse

Collected latex paint that is unwanted can be consolidated in drums and blended to produce a product for reuse. It is advisable to sort paint into light colors and dark colors so that either a light beige or dark brown mixture can be produced. Filtering is recommended to remove large particles and other solids from the paint. When storing latex paint in colder climates, be sure to take steps to prevent the paint from freezing.

Disposal

Latex paint that is not reusable and latex paint sludges can be allowed to dry (absorbent materials including cat box filler, saw dust, newspaper may be added to speed the drying process). Once dried it can be disposed of in municipal solid waste landfills, because latex paint is not a hazardous waste. Once latex paint and sludges have been removed from containers, metal paint cans can be readily recycled.

2. Solvent-Based Paint

Solvent-based paint contains materials identified as hazardous under federal regulations, and thus requires special handling and disposal. Unlike leftover latex paint, it is not generally suitable for consolidation and reuse.

Disposal

Because of liability issues related to hazardous waste, sponsors should clearly define leftover solvent-based paint management options that the contractor may use. A sponsor should give the contractor a hierarchy of management practices from most desirable to least. The hierarchy should be:

- Paint Exchange/Reuse
- Fuel Blending
- Incineration
- Landfill

Regulatory Considerations

The sponsor and contractor have to clearly identify which party takes ownership of collected leftover paint, i.e. who is the generator, who is liable?

A temporary EPA hazardous waste generator number must be obtained in order for the waste to be transported. This number is required on the hazardous waste manifest.

The contractor should clearly identify the facility where leftover solvent-based paint will be ultimately disposed of, and should be prepared to submit a "proof of destruction" certificate for each delivery to the disposal facility.

The facility that handles solvent-based paint prior to disposal should be a fully federally permitted Treatment Storage Disposal Facility (TSDF).

Sponsor organizations may wish to audit contractors' facilities prior to sending leftover paint. An audit may include a background check of the regulatory status of the facility, including any compliance violations or fines.

Cost Considerations

The contractor and sponsor should agree upon the definitions for recycling, reuse, fuel blending and incineration.

- Utilize used or reconditioned DOT certified drums.
- Utilize fiber drums for paint destined for incineration.
- Hold a percentage (10-20%) of the contractor's payment until receipt of return manifests and certificates of destruction or recycling.
- Offer incentives to contractors that provide innovative recycling and reuse alternatives.
- The sponsor and contractor should agree upon the extent of leftover paint sampling and analysis.
- Sponsors should consider combining leftover paint collections to reduce contractor costs.
- Transportation of leftover paint should be combined with other waste generators to reduce cost.

It bears repeating: the single action most likely to reduce collection and disposal costs for all concerned is either to *not collect* leftover latex paint or, if collected, to not treat it as a hazardous waste.

Part IV

Recycling Steel Cans and Aerosol Containers

A. Recycling Empty Steel Paint and Aerosol Cans

Paint and aerosol cans — when empty and dry — are just as recyclable as the more commonly collected steel food and beverage cans, and should be included in recycling programs with proper public education. Paint and aerosol cans require preparation for environmental safety, and residents need to be informed how to do this for recycling.

Paint cans **must be emptied**; there cannot be a **liquid** layer of paint on the bottom of the cans. A thin skin of dry paint on the sides and bottoms of the cans may be left; they do not have to be scrubbed clean. The skin of paint inside **must be dry** before recycling collection. Following household use and preparation, paint cans may be included in curbside collection programs with other metal cans or they may be taken to a drop-off center.

Empty steel aerosol cans that held common household products such as whipping cream, hairspray, spray paint, deodorant or shaving cream may also be recycled, along with other steel cans. After emptying the can through normal use, the can (without its plastic cap) should then be placed in the curbside box or taken along to the drop-off location.

B. Recycling Non-empty Steel Paint and Aerosol Cans

1. Collecting non-empty cans.

Normally, empty steel paint and aerosol cans are collected along with the mix of steel food and beverage cans through residential curbside and drop-off recycling programs. When paint or aerosol containers have not been fully emptied through normal use, however, the unused contents prohibit their direct recycling. In some areas, these items are simply discarded in municipal solid waste. But if the contents are to be recovered and the containers recycled, these non-empty containers require separate collection and extra preparation.

Many communities assist residents in managing non-empty paint and aerosol cans by conducting periodic household special waste collection events or operating a permanent facility. The site operator should encourage residents to participate but also to recycle their empty steel paint and aerosol cans with the existing residential steel can mix. Time and costs are reduced from unnecessary handling of empty containers.

2. Processing non-empty cans.

At the collection site, similar paints from partially-full or full steel paint cans are typically poured into tanks or drums for reprocessing and reuse as a salable product or donated to charities. Empty cans must then be drip-dried, leaving only a thin skin of dry paint on the inside of the containers and the detached lids. Cans may also be flattened manually or mechanically. Some mechanical can-flatteners will do the job even if the can contains paint!

Likewise, partially-full or full steel aerosol cans are degassed, decanted and flattened using manual or automated specialty equipment. Product residuals are captured for appropriate disposal or, in some cases, reuse. Propellant gases may be captured and compressed for reuse or other disposition.

Since most propellants and some products are flammable, appropriate venting, non-sparking and other UL (Underwriters Laboratory), NFPA

(National Fire Protection Association) and OSHA (Occupational Health and Safety Administration) safety design considerations must be incorporated into any purchased or self-fabricated equipment.

3. **Recycling empty cans through local options.** Communities recycling emptied and dried steel paint and aerosol cans recovered through special waste collection should make advance arrangements with a local ferrous scrap processor or waste hauler to purchase or accept the empty containers as recyclable steel can scrap. A scrap processor or hauler may provide and service a bin at the site for the emptied cans, although a fee may be required.

Depending on the volume involved and the equipment available, the empty steel cans may also be processed by the site operator into bales on site. If so, the material may then be shipped to a ferrous scrap processor as loose baled steel can scrap. Open communication by the site operator with the scrap processor is required to satisfy questions about paint or chemical residue and to provide assurance of the consistency and quality of the steel can scrap supplied.

C. About Steel Can Recycling

Steel food, beverage, paint and aerosol cans and steel lids and closures on other containers are recycled into new steel products. Among these are new cans, automobiles, appliances, construction materials, tools and toys. End markets for steel cans include steel mills and foundries. New steel is made with old steel. So all of today's steel products contain recycled steel and are recyclable.

Steel's magnetic attraction allows steel cans — paint, aerosol and otherwise — to be magnetically separated from other recyclables, or from the municipal solid waste stream. Steel cans are usually baled, although they may be flattened or shredded. Scrap dealers and de-tinners serve as secondary processors for steel cans. The consumption of incidental plastic components, paper labels and other minor, nonferrous matter during the steelmaking process has no effect on the quality of new steel produced.

D. About the Steel Recycling Institute

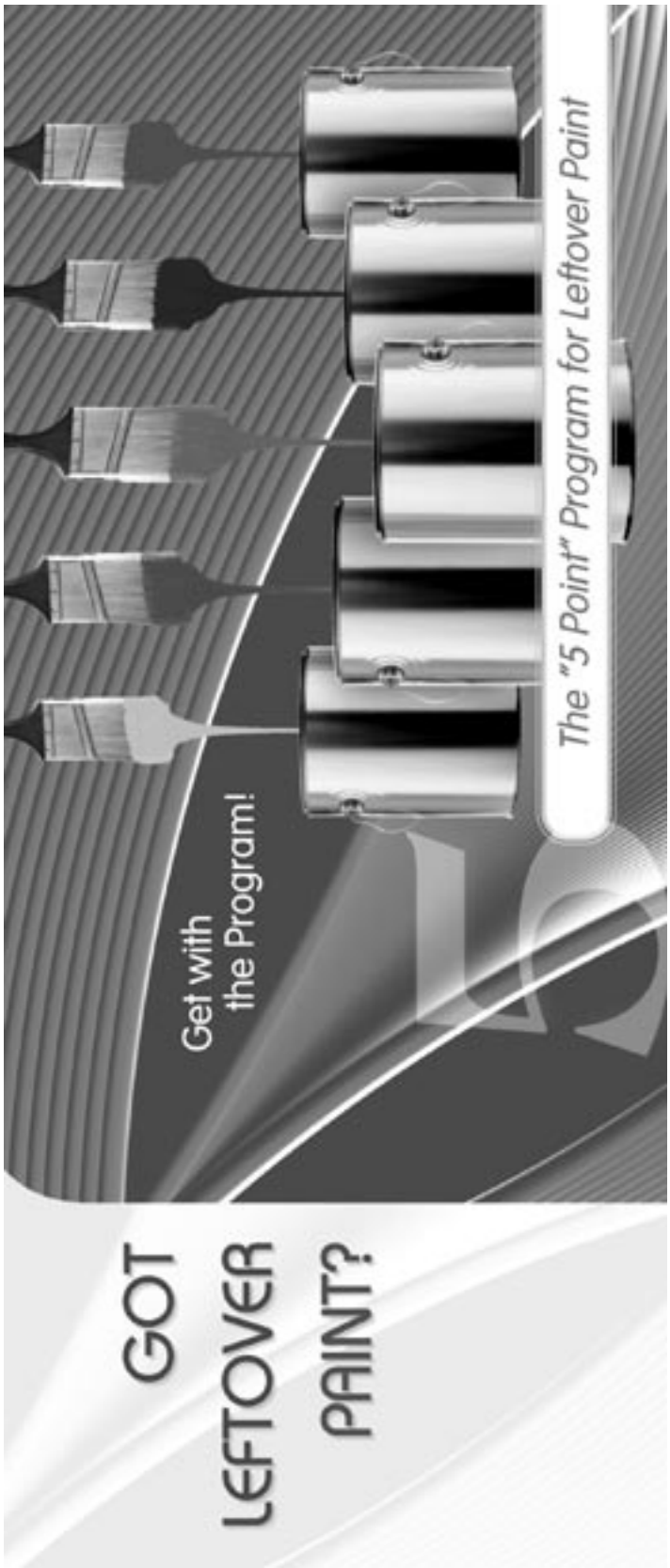
The mission of the Steel Recycling Institute (SRI) is to promote and sustain steel recycling across the United States and to serve as an information and technical resource to those who are interested in recycling steel. Through its seven regional offices, SRI works directly with state, county and city recycling coordinators and solid waste managers, recycling facility operators, ferrous scrap dealers and other secondary processors and end market buyers.

For more detailed information on steel recycling, please visit SRI at www.recycle-steel.org.

Part V — Appendices

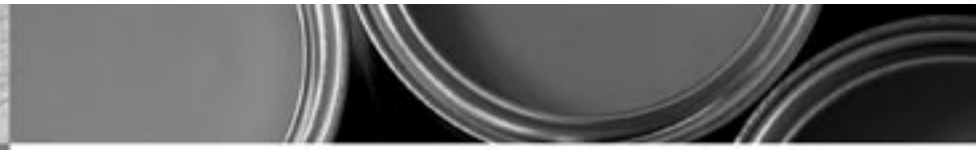
Appendix A

NPCA "5 Point" Program for Leftover Paint Brochure



Disposal of Latex Paint

Liquid wastes are restricted from municipal solid waste landfills — never throw away leftover liquid paints in your trash.



Disposal Steps

1. Unused latex paint should be poured into an absorbent material such as a cat box filler, shredded newspaper or sawdust.
2. Let it dry completely and dispose of the dried material in your regular trash.
3. In areas where recycling programs exist, save the dry, empty containers with the lids off for a steel can recycling program. Small amounts of dried residue will not hinder steel can recycling.
4. Wash your paint brushes and painting tools in the sink. Never clean your paint brushes near a storm sewer drain.

Disposal of Solvent-Based Paint

Solvent-based or alkyd paints require special disposal practices. Solvent-based paints are ignitable and present particular hazards. These products should not be emptied into storm sewers, household drains (especially if you have a septic tank) or on the ground.

Disposal Steps

1. Save solvent-based paints for a household hazardous waste collection program or contact your local/state government environmental protection agency for guidance on reuse or disposal of unwanted solvent-based paint products.
2. In areas where recycling programs exist, save the dry, empty containers with the lids off for a steel can recycling program. Small amounts of dried residue will not hinder steel can recycling.
3. Clean paint brushes and painting tools with paint thinner or turpentine.

Reusing

Paint Thinners, Turpentine, Mineral Spirits and Solvents

Paint thinners, turpentine, mineral spirits and solvents can be reused. These products, like solvent-based or alkyd paints, should not be emptied into storm sewers, household drains (especially if you have a septic tank) or on the ground. You can reuse these types of products.

Reuse Steps

1. Put used turpentine or brush cleaners in a closed container and leave it in a safe place until the paint particles settle to the bottom.
2. Pour off the clear liquid into an empty, clean container which has a lid for reuse.
3. Add an absorbent material such as a cat box filler, shredded newspaper or sawdust to the remaining residue.
4. Let this residue dry completely before disposing of it in your regular trash.
5. In areas where recycling programs exist, save the dry, empty containers with the lids off for a steel can recycling program. Small amounts of dried residue will not hinder steel can recycling.

Recycling

Paint and Aerosol Containers

Since all paint and aerosol containers are composed of high-grade steel, they can be recycled in a steel can recycling program. Paint containers made of Polyethylene Terephthalate (PET resin SPI code 1) and High Density Polyethylene (HDPE resin SPI code 2) plastic are also recyclable in many communities. Check with your local/state government to determine whether steel and other materials may be recycled in your community.

Recycling Steps

1. To recycle paint containers, make sure they are empty and dry. A thin layer of dried paint on the bottom and sides of the can is usually acceptable.
2. In order to recycle paint can lids, just remove them from the container.
3. To recycle empty aerosols, do not puncture, crush or incinerate the can. You do not have to remove the nozzle of the spray cans for recycling, but do remove the aerosol caps, which are generally made of plastic.

BE PAINT WISE, BUY THE RIGHT SIZE

Do your part to help better manage our world's natural resources. Follow the steps listed below and you will be improving the environment by following the 3R's . . . **Reduce, Reuse, and Recycle**.

1. BUY THE CORRECT AMOUNT OF PAINT FOR THE PROJECT

Be a wise consumer and buy only what you need. Check with your local paint dealer for instructions on how to determine the correct volume of paint required for your project. When you purchase the right volume of paint, it eliminates the need to store or dispose/recycle paint when the project is finished, and it might even save you money. When your painting project is complete, take a look in the can. If there is only a small quantity of paint left, use it up. Paint out the last inch-or-two of paint in the bottom of the can.

2. STORE PAINT PROPERLY TO KEEP IT FRESH

If your project is complete and you still have a fair amount of paint leftover, be sure to correctly store the paint. Proper paint storage will eliminate safety concerns and keep your paint fresh for touch-ups or future projects. For best results, cover the opening of the paint can with plastic wrap and securely seal the lid. When you are sure the lid is leak-proof, turn the can upside down and store it in a place with a moderate room temperature to avoid freezing. Be sure to choose a safe location that is out of the reach of children and pets.

3. USE UP LEFTOVER PAINT

Now that you have safely stored your leftover paint, don't forget about it. Leftover paint can be used for touch-ups or smaller projects and lighter colors can be taken back to a paint retailer and be retinted for another paint project. Record the room name on the lid for future touch ups. You can blend and mix smaller quantities of latex paint to use as a base coat on larger jobs. Perhaps, you know a neighbor or relative who could use your leftover paint; now, that's being environmentally friendly!

4. REUSE OR RECYCLE

If you can't make use of the paint yourself, donate your useable leftover paint to a worthwhile community association, theatre company, church group or other local organizations that may be in need of good paint. Perhaps, your community offers a paint exchange event or a special paint collection program. Many communities collect paint for reuse, recycling or as a last resort, proper disposal through local Household Hazardous Waste (HHW) collection programs. Check the "Earth 911" Paint Wise web portal at www.Paint.Earth911.org or call 1-800-clean-up, to learn about paint reuse, recycling and HHW collection programs that are available in your community.

5. DISPOSE OF THE PAINT PROPERLY

If there is not a leftover paint collection program available in your area, you may need to dispose of leftover latex paint yourself. Air-drying of liquid alkyd or oil based paint is not considered safe. In regions that allow it, let your latex paint air dry in a safe location away from children and pets. A small amount of paint, less than ½ inch, in the bottom of a paint can is easily dried out by leaving the lid off. Once the paint is hard, discard the paint can with the lid off, preferably in a metal recycling program. If metal recycling is not available or the paint container is plastic, dispose of the container in the garbage. Larger volumes of latex paint can be dried in a box with absorbent material such as shredded paper or kitty litter. Recycle the empty can with the lid off and dispose of the dried out latex paint as garbage. If the paint in the can is solidified all the way through, it may be disposed of as garbage with the lid off to prevent the build up of pressure in the can.

How to Obtain Additional Information

For further information on proper paint disposal, contact:

National Paint and Coatings Association
1500 Rhode Island Avenue, NW
Washington, DC 20005
Phone: 202-462-6272
Website: www.paint.org

Go to **http://earth911.org/recycling/paint-recycling/** and **www.recycle-steel.org** to locate paint and container recycling, as well as household hazardous waste programs in your community.

This brochure was printed on paper with recycled content, and is 100% recyclable.

Appendix B

Consumer Latex Paint Evaluation

Conducted by DynCorp Environmental Health & Safety Services

Executive Summary — DynCorp 1997

EXECUTIVE SUMMARY

DynCorp Environmental Health and Safety Services has completed an independent laboratory analysis of sixteen representative consumer latex paint samples. The results of this project has demonstrated that these liquid latex paint products would not be considered a "hazardous waste" according to procedures and protocols listed in EPA documentation, specifically 40 CFR, Subpart 261. 20-24. These latex paint products were tested for ignitibility, corrosivity, reactivity and hazardous constituents and were confirmed as not meeting any of the requirements to be considered a hazardous waste.

I. INTRODUCTION

The Canadian Paint and Coating Association previously conducted an analysis of dried latex paint samples taken from post-consumer collection programs in several Canadian provinces. These dried latex paint samples were analyzed to determine if harmful substances could leach off the material if it were placed in a municipal landfill. The results of the analysis indicated that left-over, post-consumer latex paint would not generate (leach) any harmful substances into the environment, near or above any currently regulated concentrations.

A logical next step is to determine if modern latex paint in the liquid form contains any harmful substances and whether liquid or dried latex paint could be considered a hazardous waste and require special handling or disposal.

The **National Paint & Coatings Association (NPCA)** contracted with ***DynCorp*** Environmental Health and Safety Services of Reston, Virginia, to perform a baseline chemical analysis of consumer latex paint. The result of this project being the generation of laboratory analytical data on the constituents in consumer latex paint and a determination of whether latex paint meets any of the criteria established for classification as a hazardous waste according to the EPA as set forth in 40 CFR 261.20-24.

The first phase of this project required the collection of representative industry paint samples, delivery of samples to an accredited laboratory, laboratory analysis of the samples according to test Method 1331 in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Method," EPA Publication SW-846, and review of the analytical data. DynCorp has completed these elements of the project and presents the following documentation.

II. PROGRAM ELEMENTS

A. Phase I

1. OBJECTIVE OF THE RESEARCH

The NPCA research project, Consumer Latex Paint Evaluation, was conducted to collect objective data to demonstrate to Federal, State and local jurisdictions whether, in accordance with 40CFR 261.20-24, left over latex paint should or should not be classified as a hazardous waste, or require special environmental handling. Independent laboratory analysis of latex paint as an "unknown" waste sample will indicate if latex paint meet any of the criteria of a hazardous waste, namely, ignitibility, corrosivity, reactivity, or toxicity characteristics. The painting industry can present this information to those jurisdictions requesting information on the waste characteristics of consumer latex paint. This information could then be used to direct the proper disposal of household latex paint.

The current handling of latex paint waste disposal varies across the country. In some locations all paint waste is considered hazardous and requires special handling regardless of composition. Other localities recognize the differences between consumer latex paint and non-latex commercial paints that contain solvents and metals, and allow for the disposal of latex paint as a solid municipal waste. The precondition in some cases being that left-over latex paint be allowed to harden or dry out in the can prior to disposal. In either case, an independent "third party" analysis of latex paint would allow for definitive analytical data to be generated and distributed to all concerned parties.

2. RESEARCH TASKS TO BE ACCOMPLISHED

TASK 1 - PROJECT INITIATION MEETING

Upon notification of award, DynCorp scheduled a meeting with NPCA to discuss the details of the project work plan and schedule for completion. This meeting was held at NPCA Headquarters in Washington DC.

During this meeting, NPCA provided DynCorp with a roster of the member manufacturers that might participate in the project. Specific data elements included:

Company Name
Contact Name
Telephone Number
Fax Number

Following this meeting DynCorp provided NPCA with a brief summary sheet identifying the key personnel working on the project, the laboratory that will be providing the analysis (see Appendix C for the qualifications of the participating laboratory), a listing of the hazardous waste characteristics being analyzed and instructions for sending the paint samples to DynCorp for submission to the lab.

TASK 1 - MILESTONES

DynCorp received authorization from NPCA to proceed with the project on December 6, 1996. At that time a membership list of potential NPCA participants was provided. DynCorp was directed to construct a questionnaire which NPCA would distribute to the membership. Following the finalization of the questionnaire on December 19, 1996, NPCA sent the form to the membership with directions to return the forms to DynCorp by January 2, 1997. By the January 2 deadline, only six positive responses were collected and the NPCA made a renewed effort for support. By January 14, DynCorp received enough responses (total of nine) to follow through with the sampling strategy. Copies of the returned forms are presented in Appendix B. A DynCorp representative met with NPCA at their January 14, 1997 meeting to discuss the progress to date and to answer questions and provide credentials on the analytical lab to be used.

Due to holiday schedules and the logistics of NPCA communicating with over 50 association members, Task #1 ran from December 6 through January 14, 1997 (5.5 weeks)

TASK 2 - COORDINATION OF SAMPLES AND ANALYSIS

Following the successful completion of Task 1, DynCorp was authorized to request latex paint samples from the designated manufacturers; purchase individual latex paint samples locally and send the samples to the independent laboratory. This project entailed the analysis of sixteen (16) latex paint samples, two each from the four general categories of latex paint: interior flats and non-flats; and, exterior flats and non-flats.

	Interior		Exterior	
Flat	PVA	Acrylic	PVA	Acrylic
Non-Flat	PVA	Acrylic	PVA	Acrylic

Table II-1. Matrix of Latex Paint Formulation Types

TASK 2 - MILESTONES

Following the meeting with NPCA members on January 14, 1997, and the review of member comments from Task 1, DynCorp coordinated with the Study Manager, Steve Sides, to finalize the distribution of latex paint types among the 16 samples. DynCorp contacted those survey participants outside the Washington DC metro area and requested specific samples of product. Non-local products were received by January 22 and local products were purchased on January 22, 23, and 24, 1997. All samples were delivered to the laboratory on Friday, January 24, 1997 and processed as 2-week turnaround by the lab.

The following table shows the names of the participating manufacturers and the types of latex paint available for analysis. Based on the responses to the Task 1 survey, specific products were randomly selected from the list of available manufacturers. Adjustments were made based on local availability of product to provide the desired distribution of latex paint types for analysis.

Manufacturer	Exterior Non-Flat	Exterior Flat	Interior Non-Flat	Interior Flat
A	PVA/Acrylic	PVA/Acrylic	PVA/Acrylic	PVA/Acrylic
B.	Acrylic	PVA/Acrylic	PVA/Acrylic	PVA/Acrylic
C	Acrylic	Acrylic	PVA	PVA
D	Acrylic	Acrylic	PVA/Acrylic	PVA/Acrylic
E	PVA/Acrylic	PVA/Acrylic	PVA/Acrylic	PVA/Acrylic
F	PVA/Acrylic	PVA/Acrylic	PVA/Acrylic	PVA/Acrylic
G	Acrylic	Acrylic	Acrylic	PVA
H	Acrylic	PVA/Acrylic	PVA/Acrylic	PVA
I	Acrylic	Blend	Blend	PVA

Table II-2. Matrix of Latex Paint Manufacturers and Latex Formulations.

#	Manufacturer	Surface	Sheen	Formulation
1	D	Interior	Flat	Acrylic Latex
2	F	Interior	Flat	Vinyl Acrylic Copolymer
3	B	Interior	Flat	Vinyl Acrylic Resin
4	A	Interior	Flat	Latex
5	C		Semi-Gloss	Vinyl Acrylic Latex
6	I	Interior	Satin	Vinyl Acrylic Copolymer Styrene Acrylic Copolymer
7	G	Interior	Low Luster	latex enamel Acrylic Polymer
8	E	Exterior	Semi-Gloss	Acrylic Vinyl Polymer Acrylic Resin
9	I	Exterior		Vinyl Acrylic Copolymer
10	E	Exterior	Flat	Acrylic Vinyl Polymer
11	H	Exterior	Flat	100% Acrylic Latex
12	G	Exterior	Low Sheen	Acrylic Polymer
13	B	Exterior	Low Luster	Vinyl Acrylic Polymer Linseed Alkyd Resin
14	E	Exterior	Semi-Gloss	Acrylic Vinyl Polymer Acrylic Resin
15	D	Exterior	Satin Gloss	100% Acrylic Latex Resin Solids
16	C	Exterior	Semi-Gloss	100% Acrylic Blend Enamel

Table II- 3. showing sample numbers, manufacturers, product types/names/codes and formulations.

TASK 3 - ANALYSIS OF DATA

Once the laboratory analytical data was received from the laboratory, DynCorp processed the results , reviewed that all laboratory protocols have been met regarding spikes and percent recovery thereby insuring that the results meet EPA's data quality standards. As defined by NPCA Statement of Work, the data will present values for: Ignitibility, Corrosivity, Reactivity, and Toxicity Characteristics: metals, volatiles, semi-volatiles, pesticides, herbicides

In order to be in compliance with the requirement to determine whether latex paint exhibits **any** characteristic of hazardous waste as defined under 40CFR 261.20-24, DynCorp proposed to have the samples run under a **full** Toxicity Characteristic Leaching Procedure (TCLP) analysis, referred to as Method 1311. This analysis is very comprehensive for a number of contaminant suites. DynCorp pointed out that several of these contaminant suites, namely pesticides and herbicides, have no rationale for being in the latex paint and are assumed to be absent from latex paint. However to be compliant with NPCA's request, a complete TCLP analysis was performed, essentially "covering all the bases."

TASK 3 - MILESTONES

DynCorp received partial results of the TCLP Metals analyses on February 7, 1997 two weeks following the delivery of the samples. The remaining TCLP parameters: volatiles, semi-volatiles, pesticides and herbicides, were available on February 10, 1997. DynCorp reviewed the laboratory data sheets to confirm that all holding times were met, that proper EPA methods were used, and that surrogate recoveries were appropriate and valid. The final submission from the lab was received on February 25 and provided the remainder of the hazardous waste characterization data on ignitibility, corrositivity and reactivity.

The following table gives the results of the survey. A total of eight different formulations of latex paint were subjected to laboratory analysis according to EPA methods to determine if the material would be classified as a hazardous waste and therefore be subject to restrictions for disposal. For all eight categories, the results were "no", the material is not a hazardous waste.

Latex Paint Formulation	Ignitibility	Corrosivity	Reactivity	TCLP Metals-Vol-SemiVol-Pest-Herb				
Interior Flat PVA	No	No	No	No	No	No	No	No
Interior Flat Acrylic	No	No	No	No	No	No	No	No
Interior Non-Flat PVA	No	No	No	No	No	No	No	No
Interior Non-Flat Acrylic	No	No	No	No	No	No	No	No
Exterior Flat PVA	No	No	No	No	No	No	No	No
Exterior Flat Acrylic	No	No	No	No	No	No	No	No
Exterior Non-Flat PVA	No	No	No	No	No	No	No	No
Exterior Non-Flat Acrylic	No	No	No	No	No	No	No	No

Table II-4. Summary of Waste Characterization Analyses of Eight Basic Latex Paint Formulations

HW#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
D001	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
D002	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
D003	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
D004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D005	1.7	1.7	1.6	1.2	ND	1.5	ND	ND	ND	1.8	1.7	ND	ND	ND	ND	1.0
D006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D009	ND	ND	ND	ND	ND	ND	ND	ND	0.018	ND	ND	ND	ND	ND	ND	ND
D010	ND	ND	ND	ND	ND	0.006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D013	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D014	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D015	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D017	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D018	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D021	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D022	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D024	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D026	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D027	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D028	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D029	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D030	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D031	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D032	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D033	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D034	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D035	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D036	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D037	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D038	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D039	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D040	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D041	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D042	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
D043	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table II-5. Summary of Hazardous Waste Characterization Data for 16 Latex Paint Samples

ND represents a concentration below the minimum reporting limit for that compound.
All numbers are in mg/L.
Hazardous Waste Codes D001-003 represent: Ignitibility, Corrosivity and Reactivity.
Only three hazardous compounds were identified and they were well below the regulatory limits:

- D005 - Barium 1.0-1.8 mg/L (regulatory limit 100 mg/L);
- D009 - Mercury 0.018 mg/L (regulatory limit 0.2 mg/l); and,
- D010 - Selenium 0.006 mg/l (regulatory limit 1.0 mg/L).

(See Appendix A - Glossary for complete listing of EPA Hazardous Waste Codes)

TASK 4 - PREPARATION OF REPORTS

Upon completion, DynCorp prepared a written technical report detailing the results of the laboratory analysis and specific statements regarding the hazardous waste characteristics, if any, of consumer latex paints. Our goal was to make the findings of this project clear and understandable to an audience with a basic technical understanding of the subject matter.

NPCA was given an opportunity to comment on the completeness and formatting of the draft report prior to becoming final.

TASK 4 - MILESTONES

DynCorp presented a copy of the draft Phase I report to NPCA for review on March 3, 1997. The final Phase I report was issued on May 6, 1997.

B. Phase II Description

Phase II of the NPCA Scope of Work requires that an additional report be generated which discusses any additional testing that could be done to further define the proper practice for disposal of latex paint waste.

DynCorp will work with NPCA to review all applicable industry documentation dealing with the issue of solid waste disposal of latex paint film. DynCorp will then determine if there are any additional tests or research approaches that would help determine the environmental degradation of latex paint film in the landfill environment. DynCorp will provide a summary report of their findings and recommendations.

Appendix C

Consumer Architectural Coatings Disposal Study

Conducted for: National Paint and Coatings Association, June 1995
Conducted by: NFO Research, Inc.
Toledo Marketing Group

A research study to quantify the amount of waste paint, stain, polyurethane/varnish, clear sealers, spray paint, etc., existing in the average American household was conducted for the National Paint and Coatings Association by NFO Research, Inc., in January 1995.

BACKGROUND/OBJECTIVES

The disposal of household coatings products poses a problem for the consumer and the coatings industry. These products include paint, stain, polyurethane/varnish, clear sealers, aerosol spray paint, paint thinner, and lacquer thinner. Due to their potential effect on the environment, proper disposal of these items is encouraged.

The NPCA had conducted research on the amount of existing waste product among households in the state of Vermont. While this research provided great insight, the results were not nationally representative. An understanding of the amount of waste product and any regional variations was required. To understand these issues, the following research study was commissioned.

The research study conducted for the National Paint and Coatings Association by NFO Research, Inc., had the following objectives:

- Determine on a nationally representative basis how many households had leftover (waste) coatings product in their household.
- Determine the amount of leftover product by product type and base (oil versus latex).
- Determine current disposal methods that a household may use.
- Examine any regional or demographic skews among those households with leftover product.
- Provide a benchmark for future studies measuring the disposal task and guidelines for industry efforts to address the current situation.

METHODOLOGY/DESIGN

The methodology consisted of mailing a one-page questionnaire, 8 1/2 by 14 inches to the NFO member.

The sample consisted of 1,000 households selected from the NFO panel. The sample was constructed to be nationally representative and demographically balanced according to NFO's standard class variables. These class variables are representative of the nine Census regions and within each region by market size, household size, household income, and age of the head of household.

The questionnaire mailed on January 13 and was in the field until February 14, 1995. Of the 1,000 questionnaires mailed, 749 usable returns were achieved for a 75% response rate. The questionnaire (see Appendix) asked about the presence of leftover product, usual/current disposal methods, length of time kept before disposal, and an inventory of leftover product currently in the home.

Of the 749 total returns, 218, or 29%, noted that they had some leftover product in their household. This encompasses the paint, stain, polyurethane/varnish, clear sealer, aerosol spray paint, paint thinners, and lacquer thinners which we requested. These 218 households exhibited the following demographic characteristics:

- Concentrated in the Middle Atlantic, East North Central, South Atlantic, and Pacific Census regions. These four regions accounted for 147 of the 218 reporting households, or 67%. This is slightly more than the 65% of U.S. households in these areas.
- Concentrated in large urban areas of 2,000,000+ population (41% of population but 47% of reporting households).
- Household headed by someone aged 40-49 and 50-59 were slightly more likely to report leftover product. They are also more likely to purchase coatings products. All other head of household age groups were quite similar to reporting households.
- Households with incomes of $25,000 or more accounted for 72.5% of the reporting households versus 60.8% of the population.
- Three- and four-member households were more likely to report having leftover product.
- High school graduates and some college represented nearly 44% of reporting households, while Bachelor degree and Post Graduate degrees accounted for nearly another 41%.

A complete description versus Census quotas is seen on the following pages.

Among all returning households, the average is .375 gallons, or 48 ounces. The greatest amount of leftover product is in paint at 38.6 ounces.

	# Gallons
Total Leftover Product	.375
Paint	.301
Paint Primer	.006
Stain	.024
Aerosol Spray Paint	.007
Polyurethane/Varnish	.009
Clear Sealer	.003
Paint Thinner	.022
All Others	.003

Respondents were asked to note the base of the leftover product, oil versus latex. The average household had 10.8 ounces of oil product left over, 33.6 ounces of latex product left over, and 3.1 ounces of solvent product left over. A breakdown of each type of coating is seen on the following pages.

Number of Gallons of Leftover Product in the Average Home

	Total	Oil	Latex	Solvent	N/A
Total	.375	.083	.263	.024	.005
Paint	.301	.045	.252	.002	.003
Stain	.024	.017	.006	.001	.---
Paint Primer	.006	.002	.003	.---	.---
Paint Thinner	.022	.002	.---	.019	.001
Aerosol Spray Paint	.007	.005	.001	.---	.---
Polyurethane/Varnish	.009	.008	.---	.---	.---
Clear Sealer	.003	.003	.---	.---	.---
All Others	.003	.001	.001	.001	.---

Gallons of Leftover Product in the Average Home

	Gallons
Oil	.083
Latex	.263
Solvent	.024
No Answer	.005
Paint	
Total	.301
Oil	.045
Latex	.252
Solvent	.002
No Answer	.003
Stain	
Total	.024
Oil	.017
Latex	.006
Solvent	.001
No Answer	.---
Paint Primer	
Total	.006
Oil	.002
Latex	.003
Solvent	.---
No Answer	.---
Paint Thinner	
Total	.022
Oil	.002
Latex	.---
Solvent	.019
No Answer	.019
Aerosol Spray Paint	
Total	.007
Oil	.005
Latex	.001
Solvent	.---
No Answer	.---

Gallons of Leftover Product in the Average Home

	Gallons
Polyurethane/Varnish	
Total	.009
Oil	.008
Latex	.---
Solvent	.---
No Answer	.---
Clear Sealers	
Total	.003
Oil	.003
Latex	.---
Solvent	.---
No Answer	.---
All Others	
Total	.003
Oil	.001
Latex	.001
Solvent	.001
No Answer	.---

Those with leftover product typically dispose of it in one of three ways:

- Throw in regular trash
- Take to authorized collection site
- Let liquid evaporate before disposal

Disposal Methods for Leftover Product

Throw in regular trash	39.9%
Pour down household/storm drain	1.4
Authorized Collection site	41.7
Donate product	10.1
Let liquid evaporate	29.8
Landfill/dump	1.4
All others	13.8

The most popular disposal methods of "throw in regular trash," "take to authorized collection site," and "let liquid evaporate" were used by similar groups of people. They were:

- Respondents 40-49 and 60+
- Households with income of $25,000 or more
- Households in large markets of 2,000,000+
- Households in the New England and Middle Atlantic regions as well as those in the East and West North Central regions.

Comparisons of these three methods are shown on the following pages.

Appendix D

Demystifying Paint: What's in Household Paint Products?

Paint is a highly complex product. Typically, latex and alkyd paints contain 25-35 different raw materials which vary according to the products' desired performance and specifications. While composed of many materials, a typical paint can be broken down into three major components: a volatile vehicle or solvent, a non-volatile vehicle or binder, and pigment. In addition, paint contains a variety of additives which function as dispersing agents, thickeners, preservatives and anti-foaming agents. Each of the three major components are discussed below.

1. Volatile Vehicle

The volatile vehicle is the part of paint that evaporates. Its function is to keep paint fluid for ease of application. Once applied, it evaporates, leaving a uniform film that forms a protective paint coating. Latex and solvent-based paints use volatile vehicles as described below.

Latex Paints — Latex paints use water and small amounts of other materials (glycols, etc.) to keep the paint liquid and uniform. The water is essentially nontoxic, and the other materials are present in such small amounts that they do not present any demonstrable toxicity. Latex paints are also referred to as vinyl, acrylic or water-based paints.

Solvent-based Paints — Solvent-based paints use organic solvents as the volatile vehicle. These may be a variety of solvents, such as mineral spirits, alcohols, acetates and aliphatic solvents. They present two major concerns: accidental inhalation and flammability. Solvent-based paints are also referred to as alkyd, oil-based, polyurethane or varnish paint.

2. Non-Volatile Vehicle

The non-volatile vehicle is often referred to as the binder or medium, which is a resin or polymer. This material is responsible for the film formation as the paint dries. Once dried, it is fairly nontoxic and presents no real health hazard. Non-volatile vehicles are used in latex and solvent-based paints as follows:

Latex Paints —The non-volatile vehicle or binder in latex paints is most often an "emulsion polymer," commonly referred to as latex. These latexes are very small particles of polymer dispersed in water (emulsion). When paint dries, they come together to form a continuous film, holding to the surface and forming a paint film.

Solvent-based Paints — Solvent-based paints are sometimes referred to as alkyd paints because the binder is generally an alkyd resin, which consists of complex esters. Solvent-based paints dry slowly, and form a durable film on the surface of a structure or object.

3. Pigments

Pigments in dried paint films are most often bound or encapsulated in resin. They are not readily dispersed into the environment, and most have low levels of toxicity.

Pigments used in paint serve several purposes:

- to hide the surface on which they are being applied;
- to provide a decorative effect through the particular color of the paint film; and
- to provide durability, washability, and gloss, etc.

Pigments used in both latex and solvent-based paints are almost the same. With the exception of a few products, all of the pigments are environmentally nontoxic. A few comments about several types are offered below.

Hiding Pigments —Titanium dioxide is the most common hiding pigment, and it is found in white and pastel paints. Titanium dioxide is relatively nontoxic; in fact, it is used in food items and such personal care products as toothpaste and makeup.

Specialty (Extender or Inert) Pigments — These pigments are added to paint to provide certain characteristics such as thickness, gloss and durability. They are usually naturally occurring products — originally in the ground and mined and purified for use in paint. Pigments such as calcium carbonate, talc and clay all originate naturally.

Colored Pigments —There are a variety of colored pigments to both impart a certain color and also to provide hiding. The two basic kinds of colored pigments are "organic" and "inorganic."

Inorganic Pigments. This category includes a number of inorganic substances such as iron oxide, found in many metal primers. Iron oxide, which gives primers a red color, is of the same chemical composition as rust, or is its "first cousin." Other inorganic pigments in paints are the products of different chemical processes but are in themselves inert and do not dissolve or break down upon disposal, therefore posing little risk to health or the environment.

Organic Pigments. Organic pigments are manufactured synthetically and provide a wide variety of colors. These, too, have relatively low levels of toxicity and do not provide any major health or environmental concern.

Note: Some older household paints collected at household hazardous waste programs may contain ingredients such as mercury biocides which are no longer used by the coatings industry.

Source: NPCA Post-Consumer Paint Management Manual (Second Edition, 1995): *Revised*

Appendix E

Health and Safety Factors to Consider When Starting a Paint Collection Program

The first step before initiating any household hazardous waste collection program should be to contact the waste management contractor or individual who will collect and manage the leftover paint or household hazardous waste. Working closely with a professionally licensed waste contractor will ensure that all safety factors are addressed.

Satisfying proper health and safety precautions while leftover paint is being examined, sorted and consolidated is a major concern associated with handling post-consumer paint materials. Precautions relating to routine protective measures need to be taken to ensure the health and safety of everyone handling leftover paint. Key safety considerations are discussed below.

Ventilation. Most paint collection programs are located outdoors where sufficient air movement occurs naturally. However, when collection programs are located inside closed structures or buildings, such as tents or warehouses, adequate air movement is needed to reduce solvent inhalation by waste management workers. Doors and windows should be open to allow air circulation. All ignition sources should be eliminated if flammable or combustible materials are being collected. Check with local health and safety boards for regulations.

Protective Clothing. Clothing such as gloves, boots, protective eyewear and NIOSH-approved respirators help protect collection workers from other household waste materials that may be mixed with paints. Protective clothing also prevents accidental paint spills from splashing onto street clothes.

Industrial Wastes. While it is not advisable, industrial paints and coatings are often brought to paint collection centers. These paints and coatings are usually not of the same compositions as consumer paints and should not be mixed with consumer paint products. If they can be identified, industrial paints and coatings should be separated from post-consumer paints and disposed of as hazardous waste. These products include swimming pool paints, marine coatings and lacquers.

Although household hazardous wastes are exempt from hazardous waste rules and regulations under RCRA, household hazardous waste collection sites are generally managed like hazardous waste facilities; a well-run facility includes trained personnel, inspection plans, preparedness and prevention measures, recordkeeping, reporting and proper disposal. It is important to note that while many of the workers assisting at these collection sites may be volunteers, worker safety regulations still apply. Again, it is advisable to review the requirements of federal and state worker/workplace safety and hazard communication laws and regulations.

Source: NPCA Post-Consumer Paint Management Manual (Second Edition, 1995): *Revised*

Appendix F

I. Paint Reuse and Recycling Programs

Four approaches to reusing and recycling post-consumer paint include:

- paint exchanges;
- paint consolidation;
- paint blending; and
- paint reprocessing.

The four approaches vary considerably from each other. Paint exchanges represent reuse, while consolidation is more of a recycling activity. Blending and reprocessing are higher degrees of recycling, and each has its own associated problems and obstacles.

Paint exchanges are preferred by the paint and coatings industry because they are relatively free of restrictive barriers, such as developing adequate resale markets, liability concerns and regulatory barriers. Once paint is removed from its original container, then barriers to paint recycling must be given serious consideration by all involved in the local household hazardous waste program, including participating paint manufacturers.

Consolidation of latex paint may be a good method for recycling usable paint without too many barriers. However, this form of recycling may require extensive testing by the local government — who is generally the customer for this type of paint — to ensure that the paint is not contaminated with heavy metals, mercury, pesticides, bacteria or other materials, and that it meets the requirements of the Occupational Safety and Health Administration (OSHA). As the degree of recycling technology increases, so too do the potential barriers which may hinder paint recycling as a viable post-consumer paint management tool.

1. Paint Exchanges/Reuse

The easiest and least expensive method for reusing paint is paint exchanges. Paint exchanges have been coordinated in many communities across the United States, usually in conjunction with household hazardous waste collection events. While there is no standard determining factor, many communities consider leftover paint reusable if at least one-third of a gallon remains in the original container, the label is intact, and the paint has not been frozen or contaminated.

Paint exchanges may reduce the total volume of paint for disposal by 25 percent or more with increased community participation.

Paint left on exchange tables should first be inspected to make sure it is still usable. These usable paints may be donated to local community projects, theater groups, schools, churches and other groups or projects such as anti-graffiti campaigns. In addition, homeowners who want a little paint or a certain color of paint may pick up free paint at these exchanges, which are also referred to as “drop-and-swap” programs. It is advisable to label the paint for “exterior use only,” since paint manufactured prior to 1991 may contain mercury. (The paint industry, working with the EPA, voluntarily ceased using mercury biocides in interior latex paints in 1990 and in exterior latex paints in 1991.)

Paint exchanges are most efficient when end-users can be identified before the paint is collected. In other words, paint is treated as a commodity and a “broker” finds a customer for the leftover paint. The paint is then transferred directly from the participant to the end-user. Through this system, the municipality decreases the need to manage leftover paint.

2. Paint Consolidation

Paint consolidation generally produces a low-grade 100-percent recycled paint. This process is relatively inexpensive to implement and may effectively reduce the volume of latex paint for disposal by as much as 50 percent or more. Paint consolidation for reuse of solvent-based paint generally is not recommended; consolidation for eventual use in a fuel-blending program is more feasible. However, if the consolidated paint is destined for a paint manufacturer, expensive testing may be required to ensure that the paint is not contaminated and meets specific requirements, thus, reducing liability concerns for the manufacturer. Manufacturers will not generally accept any post-consumer paint for recycling which has not been extensively tested and screened for possible foreign materials, as well as for raw materials data.

During household hazardous waste collection events, good quality latex paint should be filtered, tested and consolidated into 55-gallon drums. Most programs separate the light and dark latex paints in different drums, producing a beige color and a brown or dark color. The paint should be tested for possible contamination before being repackaged into 5-gallon containers and either donated or sold at a nominal cost to local government contractors or community agencies. Some communities use this consolidated, recycled latex paint in anti-graffiti campaigns, which have been fairly successful. Generally, every drum or batch of the consolidated latex paint varies slightly, due to variations in paint quality and color. *Solvent-based or alkyd paint consolidation for reuse is not generally done at this time because of the complexity and incompatibility — as well as other considerations —of such paint formulations.*

3. Paint Blending (Low-Tech Recycling)

Paint blending involves participating paint manufacturers blending leftover paint with virgin materials to yield a new paint with a recycled content. Post-consumer paint is a minority constituent or filler in these batches, constituting about 10-20 percent of the finished product. Manufacturing wash water can also be blended into the paint product. In both of these situations, bacterial contamination of the latex paint is a major threat. This is one of the reasons why most paint manufacturers are very cautious about accepting any post-consumer paint without extensive testing. The resulting latex paint is generally intended for exterior use for anti-graffiti purposes. To NPCA's knowledge, a very few U.S. paint manufacturers regularly blend leftover post-consumer paint for sale, and they have specific contractual agreements with their state governments or municipalities.

Many paint manufacturers around the country recycle their own errant or odd batches of paint. However, all of this paint is *pre-consumer* and therefore, the manufacturer knows what is in it. The process is more complicated when dealing with post-consumer paint, and these complications may present several real barriers to paint recycling by this advanced method. The barriers to paint recycling are discussed in the following pages.

Blending post-consumer paint for use in an energy recovery system is widely used in the industry for solvent-based paints. Fuel-blending is an ideal recycling activity to reuse unwanted or unused waste post-consumer solvent-based paints. Please note, however, that paint and related products may only be fuel blended if the BTU content is at least 5000 BTU. If the BTU content is less than 5000, it must be incinerated.

Latex paints generally are not blended for a fuel-to-energy program because they are low in energy value (BTU); however, small batches of latex may be blended with solvent-based paints for such a reuse program as long as the BTU value of the blend is relatively high (generally over 10,000 BTU/lb). Check with your local cement kiln operator or fuel-blender to see what is acceptable.

4. Paint Reprocessing (High-Tech Recycling)

Paint reprocessing, or high-tech recycling, requires careful quality control during the sorting and reprocessing steps. Leftover paint should first be sorted to exclude paints that would compromise the quality of the finished product

or that would render it hazardous. NPCA recommends that the paint be bulked into batches of 1,000 gallons or more. The characteristics of each batch should be tested using standard paint industry procedures. Paint color and characteristics should be adjusted with additives, until each batch meets a uniform internal standard. The 100-percent recycled paint would then be ready to be sold at retail.

In the United States, the limited high-tech paint recycling programs which exist generally only handle latex paint. Solvent-based paint recycling is not advised by the paint industry at this time because of the complexity of the paint materials and the high cost of handling and recycling solvent-based paints compared to other post-consumer paint management alternatives, such as waste-to-energy programs.

II. Potential Barriers to Paint Recycling

Recycling paint may sound like the perfect environmental solution to paint disposal — but will it really solve the problem of leftover paint?

A typical paint manufacturer produces many, many different paints — each formulated, tested and marketed to meet specific needs. One of the biggest misperceptions is that all latex paint is alike *and all solvent-based* paint is alike. In order to understand the wide diversity of paint product types, let's look at just architectural paints —which include consumer paints. There are solvent- and water-based products; interior and exterior products; wall paint, trim paint, ceiling paint, floor and porch paint; stains and varnishes; concrete block and cement coatings; metal and corrosion resistant coatings; water-proofing elastomeric products; stain-blocking products; primers, sealers and surfacers; etc.

Unlike materials such as paper, cans or glass bottles, paint is not uniform in composition and is not intended to be thrown away. Paint is a very complex mixture which can easily be adulterated, by intention or by accident. Some people tend to use a half-empty paint can to dispose of other household wastes such as household cleaners, pesticides and motor oil. These contaminants are especially hard to detect in alkyd paints. This raises health and safety concerns. Since there is no way to know for sure what else is in paint cans when they come into a paint collection site, utmost care must be taken to ensure that the waste paint poses no health or safety threat to those individuals who must dispose of the waste paint.

The barriers to paint recycling discussed in this section address primarily low-tech and high-tech recycling as discussed in the previous section. Certainly, some of these barriers exist for consolidation/blending of paints, and these need to be considered by both the waste management officials and any paint manufacturer who wants to become involved in paint reuse and **recycling programs**.

While some of these barriers may be overcome through extensive discussions and contractual agreements between the local household hazardous waste program officials and a participating paint manufacturer, it must be clear that paint recycling is a voluntary activity at the local or regional level. Paint recycling should remain an activity discussed and agreed upon by a specific, participating paint manufacturer and local household hazardous waste/solid waste professionals.

1. Processing and Testing Barriers

Since there is no standard paint recycling protocol, different paint recycling programs have different methods of processing and testing

post-consumer paint. Ideally, every container of paint collected should be thoroughly tested to ensure good quality, uncontaminated paint for recycling programs. Unfortunately, running a battery of tests on collected paint can be expensive, and most municipalities do not have adequate funds for such quality assurance testing that is necessitated by standards of both OSHA and the industry. This poses a major problem because household paint may not be adequately tested to satisfy the participating paint manufacturer, causing liability to increase. In addition, responsibility for bearing the testing and processing costs is a consideration. Neither paint manufacturers nor local waste management officials have extensive financial resources to fund large, complicated paint recycling programs. However, some paint recycling programs exist without exorbitant costs.

Even if funds are available, the average paint manufacturer would not accept residual paint as a raw material without extensive testing because of liability concerns. A typical full TCLP test in the Chicago area for a paint manufacturer can cost at a minimum $1,200; this would translate to approximately $6 to $7 per gallon of paint for testing. This cost may be reduced to a base of approximately $600-$800 by restricting the TCLP test to heavy metals content only.

In order for a participating paint manufacturer to accept post-consumer paint as a material for reuse in the manufacturing of paint, the post- consumer residual paint may need to be tested (and inspected) for the following (although tests may be done in aggregate to help reduce costs):

a) Presence of any toxic, regulated materials, including mercury, lead, hexavalent chromium, cadmium, isocyanates, organic chlorides, etc.;
b) Presence of bacteria, fungus or enzymes;
c) Non-volatile solids content;
d) Pigment volume concentration;
e) Titanium dioxide content;
f) VOC content;
g) Resin types and content;
h) Presence of seeds, gels, dirt and/or grit; and
i) Color (L,a,b; or x,y,z format).

Most of this testing may be required by the participating paint manufacturer to ensure compliance with hazardous materials control legislation; some paint manufacturers may require less testing. The degree of testing should be discussed prior to any contractual agreement. An independent lab typically charges from $500 to $1,000 per sample for a full battery of tests for these requirements.

2. Contamination as a Barrier

Contamination of paint with such components as pesticides, used oil or other foreign matter will have a major effect on a paint recycling program. Because a standard TCLP will not identify many hazardous constituents of old paint, it is difficult to determine what consumers may have mixed with the paint before bringing it to a paint collection program (see table next page). Because contamination is of major concern to most paint manufacturers, extensive testing may be required before a typical paint manufacturer will even consider accepting post-consumer paint as a raw material for either low-tech or high-tech paint recycling. In addition, contamination again raises concerns about product and environmental liability and worker safety.

Latex paints pose a special problem since they may be contaminated by bacteria. With the voluntary withdrawal of mercurial biocide use in latex paints in 1990 in interior paints and in 1991 in exterior paints, concern with bacterial contamination has increased. In addition, there are chemicals that can kill the “good” bacteria, but once the product has been contaminated, enzymes produced by the bacteria are present and they create special problems that could make the mixture unstable and much more difficult to reuse in a recycling program that requires reprocessing of any kind.

Some Contaminants That Might Be Found in Post-Consumer Paint

Description	Chemicals in Contents
Rust Stain Remover	Hydrofluoric acid and sodium sulfite
Bathroom Cleaner	Tetrasodium ethylene diamine tetracetate, plus organic ammonium and chloride complexes
Reducing Solvent	Ethylene glycol monoethyl ether acetate
Gypsy Moth Spray	Carbaryl (1-naphthyl, N-methylcarbamate)
Crab Grass and Dandelion Killer	Dodecyl ammonium methanearsenate, Octyl ammonium arsenate and octyammonium salt of 2-4 Dichlorophenoxy acetic acid
Gasoline Antifreeze	Methyl alcohol
Sudsy Detergent	Ammonium hydroxide
Weed Killer	Diethylamine salt/ 2-4, dichlorophynoxy acetic acid and Diethylamine salt of 2-(2 methyl) 4-chlorophynoxyl propionic acid

Source: Tests conducted by a private paint company.

3. Market Barriers

One of the biggest obstacles to paint recycling is the imbalance in the basic economic equation of supply and demand. Currently, there is not a well-established niche market for recycled paint products. Many manufacturers participating in paint recycling programs are having difficulty finding markets for the paint. This causes the problem of a company having to stockpile large quantities of unmarketable, recycled paint. No one seems to want the product. Perhaps people perceive it to be inferior to new paints, or the lack of color choices is too limited (most recycled paint is available in either beige or a dirty brown color). The quality of the recycled paint may be inconsistent from batch to batch, and may be poor compared to a virgin paint product. The shelf-life of recycled paint is relatively short in comparison to virgin paint. However, some programs have been successful because a well-defined market was identified prior to paint recycling, such as a local government purchasing agency. Canada's pilot paint recycling project, in which several manufacturers participated, is a prime example of too much recycled paint and not enough demand.

Some local governments have prepared bid specifications for recycled paint purchasing, but such accommodations do not overcome the major obstacles in paint recycling such as liability, cost, transportation and contamination as outlined here.

4. Economic Barriers

The cost of collecting, identifying, segregating, handling and testing paint with the idea of paint recycling may be expensive, and in the end, may produce only a small fraction of material suitable for consideration as a raw material to most paint manufacturers. Manufacturers also have to supply additional raw materials to add to the post-consumer paint in order to meet certain specifications (e.g., government procurement specifications) in addition to providing the packaging, labeling and labor to make the post-consumer paint usable, assuming that a market already exists.

Currently, recycled paints are being marketed at a cost of $2 to $7 per gallon, although, on average, recycling the paint can typically cost $7.20 per gallon. Since the current recycling programs generally consist of giving the paint away free, the manufacturers usually have to absorb the cost for recycling post-consumer paint, recouping little of the costs associated with processing. However, municipalities sometimes pay paint manufacturers $2 to $3 per gallon to take back the paint for reprocessing.

5. Regulatory Barriers

Currently, there are no federal regulations governing the paint recycling process or disposal. Household hazardous waste, including paint

products, are exempted from stringent hazardous waste regulations under RCRA. However, while homeowners are not required to specifically treat their wastes before disposing of them in the garbage, those professionals **who collect the household** hazardous waste at a collection site are responsible for obtaining the proper operating permits. Some permanent facilities may be designated as TSD facilities, which require adherence to strict regulations. Generally, waste management contractors operate or dispose of household hazardous waste, and therefore, are permitted hazardous waste handlers. Paint manufacturers are not considered hazardous waste handlers, prompting many of those who may have considered participating in paint recycling programs to decline. In addition, paint manufacturers are not disposal facilities and cannot accept hazardous waste which requires proper permits for handling under TSD regulations.

6. Liability Barriers

Participants in a paint recycling program may face liability concerns because of the number of chemical and biological contaminants post-consumer paint may contain, and because of the possible presence of discontinued or banned chemicals (e.g., mercury) in older post-consumer paints. There are many variables that make paint recycling unattractive to many paint manufacturers, and all of these issues should be considered and discussed openly.

Non-paint products by themselves generally present little health and safety concerns, if used in accordance with directions. Like paint, these formulated products are strictly regulated and labeled appropriately for consumer use. However, when these products find their way into paint, it is very difficult to determine if the contaminated paint is safe for recycling, and extensive testing of the paint may be needed in order to identify the possible contaminants. Without identification of contaminants, manufacturers cannot prepare labels that appropriately warn the manufacturer's employees about the product's hazards.

In addition, other liability factors should be considered, such as ensuring proper labeling and testing, as well as guarantees to homeowners and retailers. Little is known about the durability of the recycled paint, and even a little undetected contaminant may affect surfaces painted with the recycled paint.

7. Transportation Barriers

Once collected, processed, and tested, post-consumer paint may be shipped to participating paint manufacturers for reprocessing under contractual agreement. Handling and packaging procedures for paints vary, depending on whether a product is classified as a hazardous material or not. (Note: a hazardous material is not necessarily a hazardous waste.) The Department of Transportation governs the shipping and carrying of hazardous materials. DOT's hazardous materials regulations are found in Title 49 of the Code of Federal Regulations.

In general, if a material is hazardous according to DOT's criteria, then there are specific requirements for shipping papers, packaging types, markings of containers, labeling and vehicle placarding. If a latex paint is contaminated with a hazardous material, then the DOT regulations would apply to the latex paint. Solvent-based paints are hazardous materials by definition. The costs of shipping hazardous materials to a destination site may be very high, especially if the material transported traverses long distances. Certainly, the matter of who should pay these costs is another factor to be determined before beginning a paint recycling project.

Source: NPCA Post-Consumer Paint Management Manual (Second Edition, 1995): *Revised*

For more detailed information on Paint Reuse Programs, see the "Guidance Manual for Paint Reuse Programs" at www.paint.org.

Appendix G

United States Environmental Protection Agency
Communications and Public Affairs (A-107)

EPA Environmental News

FOR RELEASE: FRIDAY, JUNE 29, 1990

USE OF MERCURY COMPOUNDS IN INDOOR LATEX PAINT TO BE ELIMINATED

Al Heier (202) 382-4374

To avoid possible health risks, the U.S. Environmental Protection Agency announced today that the use of mercury compounds in indoor latex paint will be eliminated. In addition, warning labels will be required on all outdoor paint containing mercury stating that the paint is for outdoor use only.

Effective on August 20, all further production of paints containing mercury must be labeled exclusively for exterior use. EPA prefers that consumers use paints which do not contain mercury when painting indoor surfaces. To deal with existing stocks of paint containing mercury, the National Paint and Coatings Assn. is working with paint manufacturers to re-label all paints with higher mercury levels (over 200 parts per million) for exterior use only. EPA believes that consumers may continue to use interior paint with lower mercury levels (200 parts per million or less) without unreasonable risk if they follow all label directions, which include ventilating thoroughly during and after use and minimizing exposure to children.

The manufacturers (registrants) of mercury products registered as pesticides for use in latex paint voluntarily agreed to the announced actions following discussions with EPA. Mercury is used as an in-can preservative to prevent bacterial and fungal growth and to control mildew on exterior surfaces. It is used in 25 to 30 percent of all interior latex paint (it is not used in oil based paint), and in 20 to 35 percent of outdoor latex paint.

The Agency has contacted the approximately 1500 paint manufacturers in the United States in an effort to identify the specific paints containing mercury. Information on specific paints will be available to the public through a toll free number for the National Pesticide Telecommunication Network, 1-800-858-7378, as well as State Health Departments, State Departments responsible for regulating pesticides (usually the State Department of Agriculture) and EPA Regional offices. Information on specific paints may also be available through the paint manufacturer.

R-111 (more)

After August 20, manufacturing interior paint containing mercury will be unlawful. By July 23, the mercury registrants have agreed to label their own products with specific directions and to deliver similar sticker labels to the paint manufacturers. The labels will prohibit use of mercury products to make interior paint. warning statements and maximum allowable use rates will also be required on all newly formulated mercury-containing exterior paint.

EPA's review of the use of mercury compounds in pain's began after a report of acrodynia (a rare form of childhood mercury poisoning) and following an investigation by the Centers for Disease Control and the State of Michigan. This severe case involved a four year old child whose Michigan home was painted in 1989 with paint containing mercury. The child's condition is much improved following medical treatment. In this case, the paint contained three times the amount of mercury normally used to preserve interior paint (930 vs. 300 parts per million).

Exterior use paints and paints labeled for both interior and exterior use may contain high levels of mercury. EPA recommends that these products not be used indoors if they contain mercury. The Agency is cautioning businesses, schools, homeowners and others, against the practice of using exterior paints containing mercury on interior surfaces because the higher mercury levels increase the chances of possible health effects.

"While available evidence suggests that mercury poisoning is rare, EPA is concerned about the potential risks to public health and the environment that may be associated with the use of mercury in paint," said Linda J. Fisher, EPA's Assistant Administrator for Pesticides and Toxic Substances. "EPA wants to prevent the potential risks that mercury in indoor paint can pose. We applaud the responsibility of the registrants of mercury for agreeing to delete this use from their registrations and to accelerate the development of data so EPA can make prompt decisions on the remaining uses."

Most pesticidal uses of mercury were banned in 1976. The use of mercury in paint was allowed to continue because it was determined that effective alternatives were not available. Alternative preservatives are available today and are already used by many paint companies. At this point, EPA does not believe that any of these alternatives present an unreasonable risk. Since paints contain many chemicals, however, it is always prudent to minimize exposure by ventilating the area being painted as well as possible.

Acrodynia is characterized by weakness and severe pain in the extremities; pinkness and peeling of the hands, feet, and nose; irritability; sweating; and a rapid heart beat. Other effects of mercury poisoning include decreased motor functions and muscle reflexes, slight tremors, short term memory loss, headaches and abnormal EEGs (a graphic record of the electrical activity in the brain). In both adults and children, the major targets of mercury poisoning are the nervous system and the kidneys.

People who believe that they or a family member may be experiencing signs or symptoms of mercury poisoning should contact their family physician. People who recently painted indoors with a mercury containing paint are urged to ventilate the area thoroughly by opening windows for as long as possible and practical. If possible, place a fan in or near an open window to enhance circulation and draw the paint fumes outside.

EPA is conducting studies to determine the rate at which mercury vapors are released after paint is applied, the actual concentrations in the air, and the amount of time it takes mercury to dissipate. EPA believes that mercury concentrations in the air decrease within a number of days after painting. Lower concentrations may be present in the air for months after application, however.

As a result of discussions with the mercury registrants, only phenyl mercuric acetate will remain registered for use in paint. Use will be limited to exterior paint and coatings and miscellaneous interior uses (speckling and patching compounds, for example).

Registrants of mercury will be required to develop and submit substantial additional data concerning the remaining uses in exterior paint. The Agency will be assessing whether further action is warranted based on the results from these studies and other available data.

Mercury compounds are also used in other products for interior use including speckling and patching compounds, joint compounds, adhesives and acoustical plasters. EPA is continuing to evaluate these products and will determine whether action is necessary to address risks from these uses of mercury.

Homeowners and consumers who wish to dispose of mercury-containing paint should take the paint to a household hazardous waste collection point in their community. If no community program exists, the consumer should consult their local government for proper methods of disposal. For further information, contact the State environmental agency, State health department, solid waste management agency, or Regional EPA office to determine an acceptable means of disposal. EPA cautions that paint containing mercury should never be poured down the sink, drain or toilet. Mercury which enters aquatic systems can form methyl mercury which is very toxic to humans and animals.

Businesses who wish to dispose of mercury-containing paint may be subject to Subtitle C regulations governing hazardous waste under the Resource Conservation and Recovery Act. The method of disposal will depend on the concentration of mercury in the paint and the quantity of hazardous waste that the business generates each month.

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Appendix H

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 22 1992

OFFICE OF
SOLID WASTE AND EMERGENCY RES

MEMORANDUM

SUBJECT: RCRA Subtitle C Requirements Applicable to Household Hazardous Waste Collection Programs Collecting Conditionally Exempt Small Quantity Generator Waste

FROM: Sylvia K. Lowrance, Director
Office of Solid Waste

TO: Waste Management Division Directors
Regions I - X

The purpose of this memorandum is to clarify state-approved Household Hazardous Waste (HHW) Collection Programs (HHWCPs) that manage both Conditionally Exempt Small Quantity Generator (CESOG) waste and HHW are not subject to the full RCRA Subtitle C requirements merely because they mix these two types of wastes together. Based on the numerous questions we are receiving, it is apparent that there is a great deal of uncertainty among members of the regulated community and implementing agencies about this issue.

Background

This clarification is necessary for several reasons. First, many communities are addressing the issue of CESQG waste management because they want to assure that these hazardous wastes are appropriately managed. As with HHW, some communities are interested in separating and collecting CESQG waste from the municipal solid waste stream to minimize the input of hazardous constituents to their landfills and combustors. In addition, many CESQ generators (the majority of which are small businesses) are addressing the issue of how to best manage their waste to reduce potential future liability for cleanup of facilities where wastes have been mismanaged. CESQ generators are interested in participating in HHWCPs even though they, unlike HHW generators, typically must pay a fee. Often CESQ generators do net have- alternative options other than disposal in the solid waste stream for their wastes. Their quantities are too small to economically manage using hazardous waste disposal firms and these generators usually lack the expertise and resources to manage their wastes under Subtitle C.

The regulations governing the management of CESOG waste are found at § 261.5 of Title 40 of the Code of Federal Regulations (CFR). This provision describes a conditional exemption from the full hazardous waste regulations for CESQG waste as long as certain requirements are met[1]. The issue raised to the Agency concerns state-approved programs that collect both HHW and CESQG waste. Household waste, including HHW, is excluded from regulation as a hazardous waste under 40 CFR 261.4(b)(1).

Problem

Uncertainty about RCRA regulatory requirements prevents communities and businesses from making cost-effective decisions about management of HHW and CESQG waste. The question raised to the Agency by communities and companies considering developing or participating in collection programs that collect both HHW and CESQG waste is:

> If a collection program accepts and manages both HHW and CESQG waste and mixes these two types of wastes together (e.g., pours spent solvents from households and small businesses into the same drum), how is the resultant mixture regulated?

This question is prompted specifically by 40 CFR § 261.5(h), which states that CESQG waste may be mixed with non-hazardous waste (e.g., HHW) and remain subject to the reduced requirements for CESQ generators, even though the mixture exceeds CESQG quantity limitations, only so long as the mixture does not meet any of the characteristics of hazardous waste in 40 CFR Part 261.

If § 261.5(h) were to apply to collection programs where CESOG waste and HHW are mixed, these programs would be faced with the substantial burdens and costs associated with full Subtitle C requirements. The only way to reduce these burdens would be to manage CESQG waste and HHW separately (i.e., not mix them in the same container). Even this approach would have significant downsides. For example, managing the wastes separately greedy increases paperwork requirements, increases the space required to store the wastes, increases packaging costs, and

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[1]Under 40 CFR 261.5(f)(3) and (9)(3), CESQGs must send their wastes to either a federally permitted or interim status hazardous waste management facility, a state authorized hazardous waste management facility, a recycling facility, or a facility permitted, licensed, or registered by a state to manage municipal or industrial solid waste. (For further detail concerning state approval, see attached letter dated October 9, 1986 from Mark A Greenwood, Assistant General Counsel, U.S. EPA, to Joan H. Peck, Chief, Waste Evaluation Unit, State of Michigan Department of Natural Resources.)

increases both shipping and disposal costs. This increased burden comes with no increase in environmental protector. To avoid either of the above scenarios - full Subtitle C regulation or increased costs associated with separate management of CESQG waste and HHW - many collection programs are refusing to accept CESQG waste. This represents an unnecessary barrier to communities and companies who are seeking environmentally sound methods of managing CESGQ waste.

Clarification

The CESQ generator regulations were not intended to impose barriers to collection of CESQG waste and, thus, to the removal of these wastes from the municipal solid waste stream. In fact, the discussion in the preamble when § 261.5(h) was promulgated (45 FR 33102 - 33104) indicates that collection of CESQG waste was not envisioned at that time and, thus, was not addressed by the regulations. The Agency's intent behind the Subtitle C regulations concerning HHW and CESQG waste was, as with municipal solid waste, to allow States to determine what controls are necessary for management of CESQG waste and HHW within the state. See 45 FR 33104. Therefore, to apply ~ 261.5(h) to collection programs that mix CESQG waste and HHW would create an unintended barrier to programs whose intent is to dispose of these wastes economically and in an environmentally sound manner.

Based on the above discussion, and the fact that § 261.5 generally provides direction to the CESQ generator rather than to others managing CESQG waste, X is our interpretation that § 261.5(h) applies to the CESQ generator and not to the subsequent managers of the CESQG waste described in § 261.5(f)(3) and (93(3). Programs and facilities receiving and mixing CESQG waste and HHW are subject to requirements imposed by States through the States' municipal or industrial waste permit, license, or registration programs, but are not subject to the full hazardous waste Subtitle C regulations, even if the mixed CESQG and household hazardous wastes were to exhibit a characteristic of a hazardous waste. The collection facility does not become the generator of the mixture merely by mixing CESQG waste with non-hazardous waste, and regardless of the quantity of the mixture of wastes, is not subject to the 40 CFR Part 262 generator regulations. By contrast, CESQ generators that mix hazardous and non-hazardous waste and whose resultant mixtures exceed the § 261.5 quantity limitations and exhibit a characteristic, are no longer conditionally exempt and are subject to the applicable Part 262 hazardous waste generator regulations.

Attachment

cc: Bruce Weddle
David Bussard
Regional Implementation Team

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D C 20460

OCT 9 1986

OFFICE OF
GENERAL COUNSEL

Ms. Joan H. Peck, Chief
Waste Evaluation Unit
Hazardous Waste Division
State of Michigan Department of Natural Resources
Stevens T. Mason Building
Box 30028
Lansing, MI 48909

Dear Ma. Peck:

I am responding to your September 15, 1986 request for clarification on how 40 CFR 261.5 (g)(3)(iv) applies to facilities chat temporarily store hazardous wastes produced by generators of less than 100 kg/mot

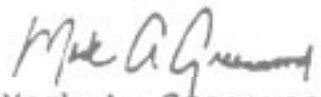
The condition under which the hazardous waste produced by these generators would be exempt from full regulation under S261.5(g)(3)(iv) is that the generator must either treat or dispose of his hazardous waste in an onsite facility or ensure delivery to an offsite storage, treatment or disposal facility, either of which is permitted, licensed or registered by a State to manage municipal or industrial solid waste. The purpose behind imposing this condition was to ensure that the facilities managing the waste are approved by the State to handle the particular waste. This would allow the States more flexibility in dealing with small quantity generators, since the State court deal directly with situations such as where it determines the: certain types of waste should not be managed in a particular non-hazardous facility. See 45 Fed. Reg. 33104 (May 19, 1980).

The requirement that the facility be permitted, licensed or registered by a State was not intended CO impose upon the States an' particular procedure for approval of the facility. All that is required is that the State have some mechanism for approving facilities that propose to manage the except waste. Since the underlying latent of the requirement is that the State assess the risks associated with particular facilities handling the exempt waste, any mechanism that the State

chooses to accomplish this is, in our view, acceptable under the regulations. Thus, we would not judge an exchange of letters to be an inappropriate way to achieve "registration" of a facility.*

If you have any further questions, feel free to contact me or Maureen Smith of my staff at (202) 382-7703.

Sincerely,



Mark A. Greenwood
Assistant General Counsel
Solid Waste & Emergency Response
Division

* The Regulations do not define the term "registration."