BEFORE THE METROPOLITAN SERVICE DISTRICT
CONTRACT REVIEW BOARD

FOR THE PURPOSE OF AUTHORIZING AN EXEMPTION TO THE REQUIREMENT OF COMPETITIVE BIDDING AND AUTHORIZING ISSUANCE OF A REQUEST FOR PROPOSALS FROM PAINT MANUFACTURERS TO REPROCESS LATEX PAINT COLLECTED AT METRO'S PERMANENT HOUSEHOLD HAZARDOUS WASTE COLLECTION FACILITIES	)	RESOLUTION NO. 91-1477 Introduced by Rena Cusma, Executive Officer

WHEREAS, The Metropolitan Service District is in the process of designing and constructing two permanent facilities for the collection of household hazardous wastes; and

WHEREAS, Latex paint constitutes a significant portion of household hazardous wastes collected; and

WHEREAS, Reprocessing of latex paints into high quality paint products for resale has been shown to be a cost effective and environmentally sound management technique; and

WHEREAS, A paint manufacturing firm will need to be selected to reprocess latex paints collected at Metro facilities; and

WHEREAS, ORS 279.015 authorizes the exemption of certain contracts from the competitive bidding requirement; and

WHEREAS, Metro Code Section 2.04.010, as amended, requires an exemption for public contracts obtained through a Request For Proposals (RFP) process; and

WHEREAS, Metro Code Section 2.04.041(c) and ORS 279.015(2) allows the board to exempt a public contract from public bidding requirements if it finds that: (1) It is unlikely that the exemption will encourage favoritism in the awarding of public

contracts or substantially diminish competition for public contracts; and (2) awarding the contract pursuant to the exemption will result in substantial cost savings to the contracting agency; and

WHEREAS, Metro Code Section 2.04.041(c) authorizes, where appropriate, the use of alternative contracting and purchasing practices that are consistent with the public policy of encouraging competition; and

WHEREAS, The Board finds that it is unlikely that exempting solicitation of household hazardous waste transportation and disposal services from competitive bidding will encourage favoritism in the award of public contracts or substantially diminish competition for public contracts because: (1) a Request for Proposals process will be utilized; (2) the invitation to submit proposals will be advertised; and (3) Requests for Proposals will be sent to a variety of paint manufacturing firms; and

WHEREAS, The Board also finds that the exemption will result in substantial cost savings to Metro because: (1) proposers will be allowed to recommend paint reprocessing procedures and distribution methods that result in decreased costs; and (2) cost will be a primary factor in the selection process; and

WHEREAS, The resolution and attached exhibit was submitted to the Executive Officer for consideration and was forwarded to the Council for approval; now, therefore,

BE IT RESOLVED,

1. That, based on the above findings and additional information presented to the Board, the Board hereby exempts the contract for reprocessing of latex paint collected at Metro's permanent household hazardous waste collection facilities from the competitive bid process and authorizes staff to issue a Request for Proposals.

2. That the Board approves issuance of the Request for Proposals for Reprocessing of Latex Paint Collected at Metro Permanent Household Hazardous Waste Collection Facilities, attached to this Resolution as Exhibit "A" and incorporated by reference.

ADOPTED by the Metropolitan Service District Contract Review Board this 8th day of August, 1991.

Tanya Collier, Presiding Officer

ATTEST:

Clerk of the Council

JO:ay
SW911477.RES
June 28, 1991

STAFF REPORT

CONSIDERATION OF RESOLUTION NO. 91-1477, FOR THE PURPOSE OF AUTHORIZING AN EXEMPTION TO THE REQUIREMENT OF COMPETITIVE BIDDING AND AUTHORIZING ISSUANCE OF A REQUEST FOR PROPOSALS FROM PAINT MANUFACTURERS TO REPROCESS LATEX PAINT COLLECTED AT METRO'S PERMANENT HOUSEHOLD HAZARDOUS WASTE COLLECTION FACILITIES

Date: June 28, 1991 Presented by: Sam Chandler
Jim Quinn

PROPOSED ACTION

Approve Resolution 91-1477 to grant an exemption to competitive bidding requirements, authorize the use of a request for proposals to procure paint reprocessing services and to authorize issuance of the attached RFP (Exhibit A).

BACKGROUND

Metro is in the process of designing and constructing two permanent facilities for the collection of household hazardous wastes (HHW). The first of these facilities is expected to begin collecting wastes this fall. Latex paint consistently makes up a significant fraction of wastes collected in HHW collection programs; it is anticipated that 5000-6000 gallons of latex paint will be collected during the first year of operations at Metro's permanent collection facilities.

Several options are available for managing latex paints collected from households. Several HHW programs have successfully recycled a large portion of their waste latex paint by sorting out material that was still in usable condition, bulking it into larger containers, and finding users for it. This "low-tech" recycled paint is generally given away at no cost.

A pilot project in Seattle explored a "high-tech" recycling option, which produced a high quality product suitable for sale. This approach involves three main elements:

1) Careful screening to exclude material that is not recyclable, or that is high in hazardous ingredients such as lead or mercury;

2) Separation into varieties based on whether the paint is light or dark in color, and on whether it is formulated for interior or exterior use;

3) Sending the material to a paint manufacturer for batching, testing, addition of additives, mixing, sieving, and other processing as necessary to meet high quality specifications.

Metro has retained Morely and Associates, the consulting firm that assisted Seattle with their program, to aid in developing a recycling program for latex paint collected at Metro facilities. According to an analysis conducted by Morely and Associates, with input from Metro, the high-tech recycling option appears to be the most cost-effective approach. While the costs associated with handling and processing the material are greater than the low-tech option, it is anticipated that the quality of the product will allow for collection of revenue.

Once the material is suitable for sale, it will be necessary to secure a contractor to distribute and market the recycled paint. In the paint reprocessing RFP, preference will be given to firms that are willing to distribute and market the resulting paint product, as well as perform the reprocessing. If this is unsuccessful, a separate RFP will be developed for distribution alone.

JUSTIFICATION FOR USING RFP PROCESS

The high tech latex paint recycling envisioned is an unexplored technology which will be new to paint manufacturers in the area. Different paint manufacturing firms may have differing capabilities and ideas for paint transport, batch size, testing, addition of additives, mechanical processing, labeling, quality control, distribution, marketing, or other aspects of the project. A request for bids process would include defining specific requirements for these factors which would be likely to restrict competition. In the worst case, this could result in no responses, which would require Metro to use one of the more extensive latex paint management approaches. Using the Request for Proposal process will allow candidate reprocessing firms to propose reprocessing procedures and distribution methods which are likely to result in lower costs to Metro.

BUDGET IMPACT

Reprocessing of latex paint falls under hazardous waste disposal operations. The 1991-1992 budget has $400,000 budgeted for hazardous waste disposal at the Metro South household hazardous waste facility, and $400,000 budgeted for hazardous waste disposal at the Metro Central facility. It is estimated that latex paint reprocessing will require a total of approximately $25,000 of this budgeted amount.

EXECUTIVE OFFICER'S RECOMMENDATION

The Executive officer recommends adoption of Resolution No. 91-1477.

jg:ay
STAF0628.RPT
July 2, 1991

METRO

2000 S.W. First Avenue
Portland, OR 97201-5398
503/221-1646

Memorandum

To: Solid Waste Committee Members

From: John Houser, Council Analyst

Date: July 31, 1991

Re: Resolution 91-1477, For the Purpose of Authorizing an Exemption to the Requirement of Competitive Bidding and Authorizing Issuance of a Request for Proposals From Paint Manufacturers to Reprocess Latex Paint Collected at Metro's Permanent Household Hazardous Waste Collection Facilities

Resolution 91-1477 has been scheduled for consideration by the committee at its August 6, 1991 meeting.

Background

When household hazardous waste facilities become operational at Metro Central and Metro South, it is anticipated that latex paint will make up a significant portion of the material received. Emerging technologies may permit over 70% of the returned paint to be recycled. It is anticipated that during the first year of operation, approximately 5-6,000 gallons of latex paint may be returned and that ultimately up to 50,000 gallons may be returned annually.

The purpose of the resolution is to permit Metro to waive competitive bidding requirements and issue a request for proposals (RFP) to reprocess the latex paint returned to Metro facilities. Responses to the request also may include proposals for the marketing, distribution, and resale of the reprocessed paints.

Use of the RFP process is being sought to maximize the flexibility given to potential contractors. Many of the technologies for reprocessing paint and related resale marketing approaches are new. The RFP process will encourage responses and give Metro the opportunity to examine a broader spectrum of approaches to address the paint recycling issue. It is estimated that the cost of the paint reprocessing program will be $25,000 during the first year.

Seattle has developed a paint recycling program that is producing a high grade product to can be resold.

Resolution No. 91-1477
Exhibit A

REQUEST FOR PROPOSALS

for

REPROCESSING OF LATEX PAINT COLLECTED AT METRO PERMANENT HOUSEHOLD HAZARDOUS WASTE COLLECTION FACILITIES

(RFP# 91R-32-SW)

Metropolitan Service District
2000 S.W. First Avenue
Portland, OR 97201

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REQUEST FOR PROPOSALS FOR REPROCESSING OF LATEX PAINT COLLECTED AT METRO PERMANENT HOUSEHOLD HAZARDOUS WASTE COLLECTION FACILITIES (RFP# 91R-32-SW)

I. INTRODUCTION

The Metropolitan Service District (Metro) seeks proposals from qualified vendors to: 1) reprocess recycled latex paint, or 2) reprocess and distribute recycled latex paint.

Proposals are due no later than 3:00 p.m. PDT on September 23, 1991 in Metro's business offices at 2000 S.W. First Avenue, Attention Jim Quinn, Solid Waste Department. Details concerning Metro paint collection and the reprocessing proposal are contained in this document.

An optional pre-proposal conference will be held September 6, 1991, at Metro Center, 2000 SW First Avenue, Portland. Questions about the RFP will be answered, and possible addenda to the RFP will be issued based on the results of this conference.

II. BACKGROUND

In the fall of 1991, Metro will begin collecting household wastes, including leftover latex paint, at its Metro South Household Hazardous Waste Collection Facility, located at 2001 Washington Street in Oregon City, Oregon. In early 1992, Metro will also begin collecting leftover latex paint at its Metro Central Household Hazardous Waste Collection Facility at 6161 NW 61st Avenue in Portland, Oregon.

The goal of this project is to produce a marketable recycled latex paint from the old latex paint Metro collects at its two facilities. Most household waste collection programs that choose to recycle latex paint simply combine all usable paints, and give the resulting material away as an anti-graffiti paint. Metro is planning to undertake a higher quality recycling method, similar to that operated by the city of Seattle.

Metro personnel at the household hazardous waste facilities will perform all receiving, sorting, bulking, and storage operations. This will include two steps unique to this high quality approach:

1. Careful screening to exclude material that is not recyclable, or that is likely to be high in hazardous ingredients such as lead or mercury

2. Separation into varieties based on whether the paint is light or dark in color, and on whether it is formulated for interior or exterior use

The purpose of this RFP is to solicit the services of a paint manufacturer to pick up 55-gallon drums of pre-sorted paint, and then to perform batching, testing, addition of additives, mixing, sieving, and other processing as necessary to meet high quality specifications.

This RFP is also intended to solicit proposals that include distribution of the reprocessed paint. Metro's preference is to become a supplier of pre-sorted, bulked leftover latex to a private firm who will assume ownership of the paint, reprocess it, and then sell it. If it is not possible in the short term to contract with a firm that is willing to do this, Metro will retain ownership of the paint, and attempt to contract with a single firm to do both reprocessing and distribution. If this is unsuccessful, Metro will seek to contract separately for reprocessing and distribution services.

SORTING METHODOLOGY

Metro is currently planning to utilize a detailed sorting methodology for latex paint that is based on procedures which were originally developed for a Seattle collection program. A report summarizing this project is included as Attachment 1. The consulting firm that assisted Seattle with this project will be working with Metro as well. The sorting procedure that Metro is currently contemplating, described below, differs slightly from that used in Seattle. Proposals which include a reprocessing scheme which varies from that outlined in this RFP will also be considered.

The proposed procedure starts with removal of hazardous and non-recyclable paints. This initial sorting includes procedures to eliminate paint that has hardened, soured, gone through freeze-thaw cycles, and paint that is likely to contain significant quantities of lead or mercury. During the initial stages of this project, Metro intends to perform detailed testing of sorted paint, to confirm that the sorting procedure developed successfully minimizes hazardous components. The remaining material is then sorted into three varieties of paint for reprocessing: flat interior light beige, flat exterior light beige, and flat exterior rust brown.

It is anticipated that approximately 72% of the paint collected at the facilities will be recyclable, 24% will be nonrecyclable and nonhazardous, and about 4% will require disposal as a hazardous waste. The recyclable fraction will be shipped to a paint manufacturer for reprocessing; the paint reprocessing firm will not be required to manage the hazardous and non-recyclable fractions.

Metro staff at the household hazardous waste facilities will be thoroughly trained in safe handling of paints and hazardous materials. The facilities will have well ventilated indoor work areas, and sufficient carts and tables to sort, stage, and bulk anticipated volumes of paint. Substantial storage space for bulked latex paint drums exists at the Metro South facility, so recyclable material could be stored until an appropriate quantity for reprocessing were collected.

ESTIMATED VOLUMES

While it is difficult to predict participation figures for Metro's permanent household hazardous waste facilities, estimates have been developed based on the experiences of other collection programs. During the first year of operations, approximately 40 participants per week are expected to use the Metro South facility, while approximately 80 per week are expected to utilize the Metro Central facility. An average of about 1.5 gallons of latex paint were collected per participant at Metro's one day household hazardous waste collection events. Based on these figures, it is estimated that approximately 5000-6000 gallons of recyclable latex paint will be collected by Metro during the first year of operations.

It is expected that participation rates at the facilities will increase in future years. Current predictions estimate that the volume of recyclable paint will increase by about 6500 gallons per year for the first several years, eventually reaching a peak of as much as 50,000 gallons per year.

REPROCESSING

The goal of this project is to produce a marketable recycled latex paint. Proposed specifications for the final product are described in Attachment 2. Metro encourages proposals which seek to meet different specifications, provided the proposal demonstrates that the paint would be at least as marketable and economical as that specified. Expected steps in performing the reprocessing are listed below in section III, Proposed Scope of Work.

DISTRIBUTION OF RECYCLED PAINT

Consumer awareness of solid waste and recycling issues, and their role in both recycling and buying recycled products has increased significantly over the last several years. The climate is ripe for the introduction of quality products that contain recycled material. This is evidenced not only by the increasing number of products available from retailers but also from the growth of the Northwest Regional Buy Recycled Conference and Trade Show. Metro is a co-sponsor of this conference

which showcases recycled products and educates potential buyers on how to integrate the "buy recycled" ethic into their workplace.

A survey performed by Metro and Morely and Associates indicates that potential recycled paint purchases by public agencies represents about forty-six to fifty-five percent of the total reprocessed volume for the first year of HHW facility operation. Metro is working to obtain commitments from government agencies to purchase recycled paint and increase government's market participation.

Marketing and distribution to other markets is critical to a self sustaining paint recycling program. Metro welcomes proposals on all viable approaches to sales and distribution of the reprocessed paint product. This may include distribution of a portion of the bulked (before reprocessing) product to landlords, farmers or other large users. Metro seeks proposals which include acting as the product distributor, obtaining specific orders, providing technical support, providing color-blending services, and conducting market outreach to existing and new customers.

Metro's Market Development Section provides assistance to government and business purchasing agents to encourage the purchase of products that are made with recycled material. Currently, Metro ordinances require the solicitation of bids for recycled paper, recycled soil amendments and retread tires. An ordinance for recycled paint will soon be added to our procurement guidelines. New state legislation will require government agencies to look for and purchase a variety of recycled products.

Metro can provide technical assistance to the successful proposer by: promoting purchase of recycled paint through the Buy Recycled Conference, the purchasing newsletter - Acquirer, and Recycled Products index; providing information on businesses currently purchasing recycled products; and performing demonstration projects.

III. PROPOSED SCOPE OF WORK

REPROCESSING

Following are the major steps anticipated in the course of paint reprocessing. Metro will accept proposals which vary from this outline.

1. Transport paint drums from HHW facility to processor:

   Contractor will pick up and transport pre-sorted leftover paint which has been bulked in 55 gallon drums. Each drum will be marked as to

which of the three varieties it contains: mixed interior and exterior dark paints; interior light paints; or exterior light and white paints. Each drum will contain both flat and semigloss paints.

2. Mix paint drums to attain color depth:

   Contractor will empty the drums and mix the paint in three batches, and will measure the exact volume in each batch. Batch size will depend on the processing equipment to be used by the contractor.

3. Test for hazardous constituents:

   For each batch, the concentrations of lead, mercury, PCB's, and ethylene and diethylene glycols must be tested to determine whether the paint is recyclable, and to meet federal and state labeling and Material Safety Data Sheet (MSDS) requirements. Any paint that contains unacceptable quantities of hazardous constituents will be returned to Metro for proper disposal.

4. Prepare label and MSDS:

   Before the paint is reprocessed, a label and MSDS must be prepared. It is anticipated that these can be prepared once and reused for successive batches.

5. Additional tests:

   Contractor will test samples from each batch to determine the reprocessing needs of each. Sample detailed specifications are included in Attachment 2. Additional tests which may be necessary include: viscosity, percent solids, contrast ratio, sag, bubbling, grind, gloss, and color.

6. Add required additives based on test results:

   Based on results from testing, a variety of additives may be required to bring the paint to specification. These may include ethylene glycol to raise freeze resistance, hydroxy ethyl cellulose to adjust viscosity, odor masks, biocides, or a variety of other additives.

7. Add pigments to adjust color:

   Pigments (titanium dioxide or tints) would be added as needed to bring the color to specification.

8. Mix using a high-speed disperser:

   Additives and pigments will be thoroughly mixed into the paint using a high speed disperser.

9. Filter with a Vorti-sieve (100 mesh):

   The final product will be filtered using at least a 100 mesh screen.

10. Quality control tests:

    The paint will be retested to assure quality control, and consistency between batches.

11. Repackage paint:

    The paint will be canned and labeled in one gallon and five gallon containers, ready for sale.

12. Deliver product:

    Contractor will deliver paint to the appropriate location for marketing. Contractor will deliver emptied drums to Metro for reuse.

DISTRIBUTION

Following are the major anticipated aspects of marketing and distribution of the reprocessed paint. Metro will accept proposals which vary from this list.

- Maintain active contact with committed agencies to obtain specific paint orders;
- Provide delivery/or will-call service as needed;
- Provide staff to give customers technical support for the product (e.g.: proper types of applications, product limitations, surface preparation, etc.)

- Tint paint as requested;
- Resolve customer complaints;
- Monitor inventory and demand;
- Keep track of sales and accounting as necessary;
- Conduct additional marketing efforts to expand and create new markets for recycled paint; and
- Provide storage space for unsold paint.

IV. PROPOSAL INSTRUCTIONS

SUBMISSION OF PROPOSAL

Please submit five (5) copies of the proposal to Metro, addressed to:

Jim Quinn
Hazardous Waste Specialist
Solid Waste Department
Metropolitan Service District
2000 SW First Avenue
Portland, OR 97201-5398

DEADLINE

Proposals will not be considered if received at Metro's business office attention Jim Quinn, Solid Waste Department, after 3:00 p.m. PDT on September 23, 1991.

RFP AS BASIS FOR PROPOSALS

This RFP represents the most definitive statement Metro will make concerning information upon which proposals are to be based. Any verbal information which is not contained in this RFP, or in addenda to this RFP, will not be considered by Metro in evaluating proposals.

A pre-proposal conference will be held September 6, 1991, at Metro Center, 2000 SW 1st Avenue, Portland. Questions about the RFP will be answered, and possible addendum to the RFP will be made based on the results of this conference. After

the pre-proposal conference, and no later than August 14, 1991, additional questions shall be addressed in writing to Jim Quinn. If Metro determines that a question asked is significant to the outcome of this competitive process and merits a response, the question and Metro's answer will be sent to all parties on the list of proposers (those parties who have received a copy of the RFP) on or before August 16, 1991. Any proposer who has submitted a proposal and who subsequently receives an addendum, may supplement their proposal as they consider appropriate, provided that the supplementary material is received by Metro on or before the due date for proposals.

In addition to the above, Metro may issue addenda to clarify or add to the RFP. In such an event, additional time to respond to the RFP or to provide supplementary material will be granted as appropriate.

V. PROPOSAL CONTENTS

1. A transmittal letter that identifies the project manager, and states that the proposal will be valid for ninety (90) days after the submittal date; include the name, title, address, and telephone number of an individual or individuals with authority to contractually bind the company during the period in which Metro is considering proposals.

2. Methodology:

   A) If proposal is for reprocessing only, include all costs associated with performing reprocessing, and details of the proposed reprocessing methodology, including:

   - Volume of paint to be processed at one time, and frequency with which this batch may be processed
   - Procedure for conducting tests
   - Procedures for adding required additives, and performing mixing and filtering operations
   - Methods to control and attain consistent quality-specifications to be used, if different from those supplied with RFP
   - Preparation of labels and MSDS's

B) If proposal is for reprocessing and distribution, also include the following:

- Details of proposed marketing and distribution scheme.
- Whether your firm would assume ownership of paint
- All costs associated with performing marketing and distribution as described.

3. Qualifications:

A) If proposal is for reprocessing only, please describe the following:

- Experience manufacturing latex paint
- Experience recycling latex paint, if any
- Processing facilities you propose to use for recycling latex paint
- Testing facilities and expertise, and the qualifications of any outside testing services you propose to use
- Ability to pick up and deliver paint
- Experience preparing labels and material safety data sheets-include samples if any

B) If proposal is for reprocessing and distribution, also include the following:

- Experience and capability to retail latex paint, including to public agencies
- Experience and capability to provide technical support to purchasers/users

- Ability to tint paint
- Experience introducing new products, or developing new markets for existing products

4. All proposals must also include:

   Disadvantaged Business Compliance Form (see Attachment 4)

5. Optional exceptions and comments section. To facilitate evaluation of proposals, Metro requires that all responding firms adhere to the format outlined within this RFP. Firms wishing to take exception to, or comment on, any specified criteria within this RFP are encouraged to document their concerns in a distinct section of their proposal. Exceptions or comment should be succinct, thorough and organized.

VI. GENERAL CONDITIONS

LIMITATION AND AWARD

This RFP does not commit Metro to the award of a contract, nor to pay any costs incurred in the preparation and submission of proposals in anticipation of a contract. Metro reserves the right to accept or reject any or all proposals received as the result of this request, to negotiate with all qualified sources, or to cancel all or part of this RFP.

INSURANCE REQUIREMENT

The contractor shall provide (from insurance companies acceptable to Metro) the insurance coverage designated hereinafter and pay for all costs therefore. Before commencing work under the contract the contractor shall furnish Metro with certificates of insurance evidencing coverage as specified, and where indicated naming Metro as an additional insured.

a. Comprehensive General Liability

   Contractor shall maintain Comprehensive General Liability insurance covering all operations including contractual liability and product liability, against bodily injury or death including personal injury and

property damage with a combined single limit of not less than $1,000,000. Product liability for paint produced as part of this project, and/or environmental impairment insurance may be required, as determined during contract negotiations. Such policy shall name Metro, its directors, officers, agents and employees as an additional insured. Such insurance shall provide for thirty days prior written notice to Metro in the event of alteration or cancellation.

b. Auto Liability

Contractor shall maintain Auto Liability with a combined single limit of not less than $1,000,000. Such policy shall insure against bodily injury and property damage arising out of the use by or on behalf of the contractor, its agents and employees in pursuit of services provided for in the contract, of any owned, non-owned or hired vehicle. Such policy shall name Metro, its directors, officers, agents and employees as an additional insured. Such insurance shall provide for thirty days prior written notice to Metro in the event of alteration or cancellation.

c. Worker's Compensation Coverage

Contractor shall maintain in force Worker's Compensation coverage as required by the state of Oregon. Contractor shall also maintain Employer's Liability insurance including bodily injury caused by disease with a limit of not less than $1,000,000. Contractor shall require its sub-contractors (if any) to maintain such insurance also.

CONTRACT TYPE

Metro intends to award a public contract with the selected firm for this project. A copy of the standard form contract used by Metro is attached. (See Attachment 3). The terms of the contract awarded will be subject to negotiation between Metro and the firm selected for this project. Metro intends that the contract be for a period of one year, with an option for an additional one-year extension.

BILLING PROCEDURES

Depending upon whether ownership is taken by the contractor or by Metro, reprocessing costs would be recovered either directly from sales revenues, or

by contract payment from Metro. The billing procedures of the Contractor will be subject to the review and prior approval of Metro before reimbursement for services can occur.

SUBCONTRACTORS/DISADVANTAGED BUSINESS PROGRAM

A subcontractor is any person or firm proposed to work for the prime Contractor on this project. No subcontractor selection shall be finalized prior to contract award.

Metro has made a strong commitment to provide maximum opportunities to Disadvantaged and Women-Owned Businesses when contracting for goods or services. If subcontractors are to be used, the successful proposer agrees to reach the goal of subcontracting 7 percent of the total contract amount to Disadvantaged Business Enterprises (DBEs), and 5 percent of the total contract amount to Women-Owned Business Enterprises (WBEs) or to make good faith efforts, as defined in Metro's Disadvantaged Business Program (Section 2.04.160 of the Metro Code), to reach the goals.

DBEs and WBEs must be certified by the state of Oregon as DBEs or WBEs to be counted toward the Contract goals. The state's list of certified DBEs/WBEs may be obtained from the Office of Minority & Women & Emerging Small Businesses, State Executive Dept., 155 Cottage Street N.E., Salem, OR 97310, Attn: Susan Parek, (503)387-5651.

The proposal documents submitted must contain a fully completed Disadvantaged Business Program Compliance form included with Attachment 4. Thereafter, within 24 hours of notice by Metro, firms will be required to submit completed DBE and WBE utilization forms which are also included in Attachment 4. Metro expects to request utilization forms (which call for project costs) during the negotiation process. Detailed procedures for completing the forms and for demonstrating good faith efforts are contained in Metro's Disadvantaged Business Program attached to this RFP as Attachment 5. Proposer's special attention is directed to Section 2.04.155 (Contract Award Criteria), and Section 2.04.160 (b) (Determination of Good Faith Efforts). Proposers should note the following requirement of the latter section:

Advertisement in trade association, general circulation, minority and trade-oriented, women-focus publications, if any and through a minority-oriented newspaper or minority-owned trade publication concerning the subcontracting or material supply opportunities on the project at least ten (10) days before bids or proposals are due.

The following are minority-oriented newspapers published in the Portland Metropolitan area:

The Skanner, 2337 N. William Avenue, Portland, OR 97221 (503) 287-3562.

The Portland Observer, P.O. Box 3137, Portland, OR 97208 (503) 283-2486.

The American Contractor, P.O. Box 11233, Portland, OR 97208 (503) 280-9000.

The Hispanic News, 3302 S.E. 20th Avenue, Portland, OR 97202 (503) 777-6759.

Pro-Woman, P.O. Box 6957, Portland, OR 97228 (503) 452-0121

The requirement to advertise is but one of the actions necessary to demonstrate good faith efforts under this program. Failure to comply with all the requirements of the Disadvantaged Business Program will result in the proposal being deemed nonresponsive. Metro reserves the right, at all times during the period of this agreement, to monitor compliance with the terms of this paragraph and Metro's Disadvantaged Business Program. All proposers should read section 2.04.160 (b) at least 14 days prior to the proposal due date.

Questions regarding DBE/WBE requirements will be answered at the pre-proposal conference. Questions not answered at that time should be addressed to Metro's Contracts Administrator, Mr. A. M. Hazen at (503) 221-1646.

VII. EVALUATION

Evaluation of proposals will be based on the following evaluation criteria:

		Weighting
1.	General compliance with the RFP	5%
2.	Reprocessing methodology	15%
3.	Distribution methodology	20%
4.	Cost	50%
5.	Qualifications	10%

Proposals will be reviewed by a selection committee. Proposals that include both reprocessing and distribution components will be favored. The committee will select a finalist from among the proposers, and contract negotiations will be conducted with this proposer. If these negotiations proceed satisfactorily, the candidate will be given final contract award. If these negotiations are unsuccessful, the next most highly rated firm will be selected for negotiations. If the firm selected for contract award includes reprocessing only, then award of the contract will be contingent upon Metro locating and successfully contracting with a firm to perform the distribution portion of the project.

VIII. ATTACHMENTS

1. Excerpt from Seattle Latex Recycling Project
2. Proposed Technical Specifications for Reprocessed Paint
3. Metro Standard Contract
4. DBE/WBE Compliance Forms
5. Metro Code Section 2.04 Covering DBE/WBE Requirements

SEATTLE PAINT RECYCLING & DISPOSAL PROJECT
LATEX PAINT

PART 1:
LATEX PAINT RECYCLING

SEATTLE PAINT RECYCLING & DISPOSAL PROJECT
LATEX PAINT RECYCLING

PART 1 CONTENTS

SEATTLE PAINT RECYCLING & DISPOSAL PROJECT
LATEX PAINT RECYCLING

INTRODUCTION

PART 1 examines the feasibility of recycling leftover latex paint turned in through household hazardous waste collection programs. It recommends establishing a permanent program in 1991 for recycling leftover latex paint from Seattle's household hazardous waste collection sheds. Moreover, the findings indicate that other communities could also benefit from establishing latex paint recycling programs.

PART 1 is organized in three major sections:

I. **PROJECT DESCRIPTION**
II. **FINDINGS**
III. **RECOMMENDATIONS**

The **Project Description** section recounts how latex paint recycling was tested.

The next section, **Findings**, describes the successful results of these tests.

And finally, **Recommendations** details how Seattle (and other jurisdictions) can establish a permanent latex paint recycling program.

SEATTLE PAINT RECYCLING & DISPOSAL PROJECT
LATEX PAINT RECYCLING

I. PROJECT DESCRIPTION

The Seattle Paint Recycling & Disposal Project was designed to follow-up "Mother of Paint", Seattle's first latex paint recycling effort. Mother of Paint represented a major breakthrough: for the first time, it appeared that it was possible to manufacture a consistent, good-quality and marketable recycled latex paint. Other paint recycling efforts in the U.S. produce low quality paints with little, if any, resale value.

"Son of Paint" was undertaken to answer two key questions about latex paint recycling:

1. Can recycled latex paint be made which is a good quality paint; and can the quality be kept consistent between batches; and

2. Is there a sufficient market to sell the recycled latex paint?

To answer these questions, approximately 5,550 gallons of leftover latex paint was collected from householders and sorted. Latex paint was sorted into three categories: recycling, municipal landfilling, and hazardous disposal. The recycling fraction was used to test latex recycling. The municipal landfilling fraction was used to test whether non-hazardous paint can be segregated for landfilling as a municipal solid waste (see PART 2 of this report). The hazardous disposal fraction was simply disposed of as a hazardous waste.

Next, the recycling fraction was reprocessed and subjected to a battery of tests to determine the paint's quality after recycling.

And finally, the recycled paint was test marketed through 19 local paint retailers.

Each step is described in more detail below.

COLLECTION AND SORTING

Post-consumer residential latex paint was collected at four household hazardous waste collection sites, where it was sorted and bulked for recycling in four batches.

Leftover paint can be gathered through any type of household hazardous waste collection program. Leftover household paint for this project was drawn from Seattle's Household Hazardous Waste Collection Shed (located at the Solid Waste Utility's South Transfer Station), and from three Round-Up sites in Seattle and King County (the University of Washington in Seattle, Shoreline, and Kent). This allowed us to test the consistency of recycled paint collected through diverse programs.

5,550 gallons of latex were collected, sorted and bulked into 55-gallon drums at the four sites. See TABLE 1-1.1, below. 47.8% was recyclable, and 48.3% was non-recyclable and was set aside for municipal landfilling, while 3.8% was disposed as hazardous waste. The hazardous fraction was mostly solvent-based paints which had been misidentified during initial sorting, plus small amounts of high-mercury and lead-pigmented latexes.

TABLE 1-1.1
LATEX PAINT COLLECTION

SITE	RECYCLE (Gal)	(%)	LANDFILL (Gal)	(%)	HAZ DISPOSAL (Gal)	(%)	TOTAL (Gal)	(%)	LABOR (Hrs)	(hr/gal)
SEATTLE COLLECTION SHED	460	57.0%	315	39.0%	31	3.9%	806	100.0%	127.7	0.1582
SEATTLE ROUND-UP SITE	750	45.0%	899	53.9%	16	0.9%	1,665	100.0%	101.0	0.0606
SHORELINE ROUND-UP SITE	810	51.4%	613	38.9%	150	9.5%	1,573	100.0%	113.7	0.0722
KENT ROUND-UP SITE	634	42.1%	855	56.8%	15	0.9%	1,504	100.0%	83.0	0.0551
TOTAL	2,654	47.8%	2,682	48.3%	213	3.8%	5,549	100.0%	425.4	0.0767
TOTAL EXCLUDING COLLECTION SHED							4,742		297.7	0.0627

Latex paint turned in at Seattle's Collection Shed was accumulated March 11 through June 10, 1989. It was loose-packed in 55-gallon drums for sorting at a later date. It was subsequently unpacked and sorted June 10 and June 18. Unpacking the drums was inefficient, adding significant labor time (see the last column of TABLE 1-1.1).

At Round-Up locations in Seattle, Shoreline and Kent, leftover latex paint was sorted as it was collected, on June 3, 1989. Sorting was more efficient at these locations, averaging approximately 3¾ minutes to sort and bulk each gallon of paint.

Properly sorting leftover latex paint is the key step to producing recycled latex of high and consistent quality. The sorting protocol was designed to meet three goals:

- **Exclude hazardous constituents.** Federal regulations restrict the content of lead and ethylene glycol in latex paint. Moreover, concern for public health dictates that we restrict the content of other hazardous constituents, such as mercury.

- **Produce a good quality paint that is consistent.** This requires excluding all paint whose emulsion has been compromised, such as dried or congealed latex, separated emulsions ("sawdust"), and latex which has soured.

- **Produce a marketable color.** A random mixture of leftover latex is brown -- virtually impossible to sell. By selecting only lighter shades of latex and excluding all others, a more marketable light beige color can be achieved.

Sorting was conducted by crews of municipal employees plus a few volunteers. Almost all of the sorters were sorting for the first time. Crew members were given detailed training in the sorting protocol.

To follow the sorting protocol, sorting crews adhered to three steps:

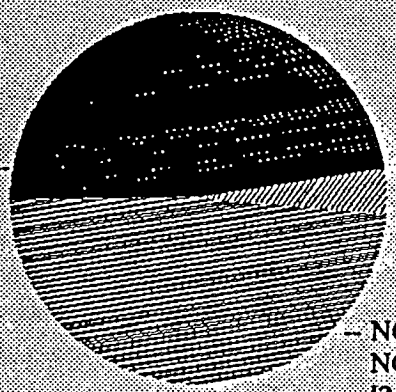
TABLE 1-1.2
OVERVIEW OF SORTING

1. Scan can label to reject solvent-based products, old white lead primers, mildew resistant paints (high mercury) and unknowns.
2. Open can, check color and appearance to reject dark colors, oranges and yellows, separated or congealed latex, or other unknowns.
3. Pay attention to odor while performing step 2, reject sour latex or non-latex products.

FOR MORE DETAIL ABOUT THE SORTING PROTOCOL, SEE TABLE 1-3.2, IN THE RECOMMENDATION SECTION (§III. A.), BELOW.

In this manner, a small amount (3.8%) of truly hazardous waste was screened out. The remaining paint was split evenly between that which was recyclable, and that which was not (see FIGURE 1-1, below).

FIGURE 1-1
SORTING YIELD (recyclable v. nonrecyclable)



DATA SOURCE: Morley & Associates, 1990.

Next, the recyclable fraction was reprocessed and tested, as described below.

REPROCESSING

The 2,654 gallon recyclable fraction of the leftover latex was reprocessed and canned as about 2,900 gallons of **"Community Pride" Recycled Interior Flat Latex Paint.**

Reprocessing was performed under contract for the City by Martec, a local latex paint manufacturer. All seven latex paint manufacturers in the Puget Sound region were invited to bid on reprocessing the leftover latex. While several expressed interest, Martec was selected on the basis of price.

The sorted, recyclable paint was delivered from each site to Martec in 55-gallon drums. Each site's paint was reprocessed separately to test the possibility of gaining consistency between discrete batches. TABLE 1-1.3 outlines how the paint was reprocessed.

TABLE 1-1.3
STEPS TO REPROCESS LATEX PAINT

1.	TEST FOR HEAVY METALS AND GLYCOL LEVELS
2.	TEST TO DETERMINE REPROCESSING NEEDS
3.	PREPARE LABEL AND MSDS
4.	ADD ETHYLENE GLYCOL AS NEEDED TO RAISE FREEZE RESISTANCE
5.	ADD HYDROXY ETHYL CELLULOSE TO ADJUST VISCOSITY
6.	ADD ODOR MASK
7.	ADD PIGMENTS TO ADJUST COLOR
8.	MIX USING A HIGH SPEED DISPERSER
9.	FILTER WITH A VORTI-SIEVE (150 MESH)
10.	QUALITY CONTROL TESTS
11.	CAN PAINT

Each batch was blended in a 800 gallon vat, sampled and tested. Simple chemical tests were conducted to gain necessary information for a can label and a Material Safety Data Sheet (MSDS). Lead and other heavy metals were analyzed to confirm that their concentrations were not to high. Federal law prohibits lead concentrations above 0.06%. Similarly, Ethylene and Diethylene Glycol concentrations were measured to ensure conformation with federal labelling thresholds of 10% each.

Additional manufacturer's tests were conducted to determine each batch's reprocessing needs. Tests included viscosity, percent solids, contrast ratio, sag, bubbling, grind, and gloss, among others.

The paint was reprocessed to meet federal procurement specifications for interior flat latex paint: TT-P-29J.

The total yield was 2,922 gallons, about 350 gallons more than was started with. Wash water and small amounts of additives were blended into the paint, and account for this difference.

Small amounts of Ethylene Glycol were added to raise the paint's freezing resistance to mee TT-P-29J specifications. Hydroxy Ethyl Cellulose was added to raise the paint's viscosity slightly (particularly batches to which wash water was added).

An odor mask was added even though it did not appear necessary, simply as a precaution.

Titanium and other pigments were added as needed to adjust each batch to a uniform color.

Additives were dispersed into each batch using a high-speed mixer. Next, the paint was filtered to remove skins and other large particles, using a Vorti-Seive with a 150 wire mesh filter screen.

And finally, the paint was canned in both 5-gallon and 1-gallon containers. The 2,900 gallons of recycled paint was test marketed as described below.

FOR MORE DETAIL ABOUT REPROCESSING, SEE THE RECOMMENDATION SECTION (§III. A.), BELOW.

MARKETING

Community Pride was test marketed as a low-end painter's grade flat interior latex. Test marketing efforts were aimed at commercial painting contractors. Targetted applications included projects where cost containment is important, such as speculative construction or low quality maintenance projects.

At the request of the local paint industry, test marketing was directed towards architectural paint contractors only. Local paint manufacturer/retailers were reluctant to risk their public reputations on a new unproven product -- they felt more secure that they could protect their reputation by working with painting professionals, and not with the public or large institutions. Moreover, contractors are limited in number, yet purchase large quantities of paint. It was thought that it would therefore be easier to introduce a new product successfully.

Sales were not aimed at public agencies because of the difficulty of fitting into or modifying government procurement practices within the short time frame of the project's marketing effort.

For these reasons, the paint was not aimed at individual homeowners or institutions.

The pilot marketing effort was intended to meet four objectives:

- Test whether demand exists at a price of about $5/gallon;
- Test whether contractors will accept a recycled product, accept its quality and purchase it;
- Test whether its color and tints are acceptable; and
- Document consumer satisfaction with the product after purchase and use.

In an effort to attract a dedicated sales force and successfully introduce Community Pride, the paint was sold through the retail outlets of local paint manufacturers.

The paint was sold beginning January, through May, 1990. Five local paint manufacturer/retail companies volunteered to test market the paint through 19 retail outlets, as displayed in TABLE 1-1.4.

TABLE 1-1.4
RETAIL OUTLETS

DALY'S

1. Seattle
   3525 Stoneway N. 633-4200
2. Bellevue
   200 - 105th NE 454-3093

DANIEL BOONE

3. Tukwila
   15701 Nelson Pl. S. 228-7767

JARVIE

4. Seattle
   640 Aloha St. 284-1040
5. Tacoma
   5102 S. Washington 473-4420

PARKER

6. Ballard
   5500 - 14th NW 783-8418
7. Seattle-South
   2924 - 4th S. 467-8981
8. Burien
   136 SW 152nd 243-4818
9. Redmond
   15940 Redmnd Wy 885-7858
10. Renton
    206 Wells Ave. S. 255-6262

PRESERVATIVE

11. North Seattle
    12012 Aurora N. 363-0520
12. South Seattle
    5410 Airport Wy S. 763-0300
13. Bellevue
    2033 - 140th NE 746-4342
14. Everett
    6620 Evergreen Wy 355-7879
15. Federal Way
    34331 Pac. Hwy S. 838-3727
16. Lynnwood
    19620 Scribr Lk Rd 776-1564
17. Renton
    350 Sunset Blvd N. 228-1750
18. Tacoma
    3635 S. Lawrence 475-0191
19. Woodinville
    13440 NE 177th Pl. 487-2468

Direct sales by the manufacturer/retailers were supported in a variety of ways by the Project Team, including:

- Documentation of the paint's quality;
- Preparation of a product brochure describing the paint and displaying color chips (see EXHIBIT at the end of PART 1);
- Preparing a direct mail marketing piece which a retailer could send to selected contractors, property managers and architectural paint specifiers (see EXHIBIT);
- Publicizing the paint through presentations to trade organizations and articles in trade publications and the general news media (see EXHIBIT); and
- Providing technical support to contractors and to manufacturer/retailer sales staff.

The test marketing effort was evaluated by tracking sales volumes and by surveying the retailers' sales staff. The results of the pilot marketing effort, as well as the paint's technical performance, are described in the next section of this report.

II. FINDINGS

This section evaluates the technical and market performance of four batches of Community Pride recycled latex paint. Latex paint recycling programs elsewhere in the U.S. are also described in this section.

A. PRODUCT PERFORMANCE

Community Pride recycled latex paint was an unqualified technical success. The product's performance was documented in the lab, in the field, and by user surveys.

LAB RESULTS

The first technical test of recycled latex paint is whether it can meet federal restrictions for lead and glycols.

Federal statute and regulations restrict dry lead concentrations to .06% of latex paint, while ethylene glycol and diethylene glycol must fall below 10%. These limits were established by the Consumer Product Safety Act (15 USC 2051 et seq.) and the Federal Hazardous Substance Act (15 USC 1261 et seq.), and by attendant regulations: 16 CFR Part 1303.3 (lead) and 16 CFR 1500.14 (ethylene and diethylene glycol).

All four batches of Community Pride were submitted for testing to Northwest Laboratories, in Seattle. The results were uniformly encouraging.

Each batch of Community Pride falls well below the .06% limit for lead -- ranging from .0025% to .015% (see TABLE 1-2.1 on the next page for details).

This result is significant, since unsorted leftover latex can exceed that limit. Numerous cans of lead-tinted paint were excluded during sorting. **The four batches of Community Pride corroborate our findings in "Mother of Paint" that a rigorous sorting protocol can effectively control the lead content in recycled latex paint.**

Eight other metals were tested in addition to lead. Of these, zinc, barium and mercury were found in the highest concentration. Zinc is contributed by zinc oxide, a very common white pigment which retards mildew and protects the dried latex from UV damage by sunlight. Barium is also a common pigment.

Mercury is likely contributed by organic mercuric biocides in the paint: phenyl mercuric acetate (PMA), phenyl mercuric oleate (PMO), and phenyl mercuric succinate. The paint industry commonly used these in the past to prevent spoilage of the paint in storage and to discourage the growth of mildew once applied (particularly exterior paints). As of August 20, 1990, mercuric biocides were no longer licensed for addition to make new interior latex paint. PMA may still be added to make exterior latex, however.

Neither the zinc nor barium content in latex paint is regulated.

TABLE 1-2.1
ANALYSIS OF METALS AND ORGANIC SOLVENTS

COMPOUND	ACCEPTABLE VALUE	RESULTS Batch 1	Batch 2	Batch 3	Batch 4
METALS:					
BARIUM ug/g (dry weight)	NOT LIMITED	1,415	723	2,132	1,669
CADMIUM ug/g (dry weight)	NOT LIMITED	2.2	2.6	1.2	2.4
CHROMIUM ug/g (dry wt)	NOT LIMITED	8.6	19.5	18.7	18.0
COPPER ug/g (dry weight)	NOT LIMITED	9.6	5.8	10.5	11.9
LEAD % (dry weight)	**0.06% MAX**	**0.00248**	**0.00942**	**0.0147**	**0.0136**
MERCURY ug/g (dry weight)	**NOT LIMITED**	**192**	**150**	**151**	**186**
NICKEL ug/g (dry weight)	NOT LIMITED	5.5	6.0	4.3	5.7
SILVER ug/g (dry weight)	NOT LIMITED	< 0.6	< 0.6	< 0.6	< 0.6
ZINC ug/g (dry weight)	NOT LIMITED	2,129	3,311	2,938	2,147
VOLATILE COMPONENTS:					
Volatiles % (including water)	NOT LIMITED	51.3	49.8	51.4	51.1
Ethylene Glycol % (dry wt)	**<10%**	**2.4**	**2.8**	**2.6**	**3.1**
Diethylene Glycol % (dry wt)	**<10%**	**0.5**	**0.5**	**0.8**	**0.6**
Propylene Glycol % (dry wt)	NOT LIMITED	2.1	3.0	2.9	3.2

DATA SOURCE: Northwest Laboratories of Seattle, Inc; September 12, 1989; Lab No. E 49047; Jeffrey Lofgren, Chemist.

Community Pride also falls well below the 10% labeling threshold for glycols (see TABLE 1-2.1, above). Indeed, Community Pride's glycol levels were so low that additional ethylene glycol had to be added during reprocessing so the paint could meet federal freeze-thaw specifications. Glycols are used in latex paint as an anti-freeze. Ethylene glycol concentrations ranged from 2.4% - 3.1%. Diethylene glycol ranged from .5% - .8%. These are well below the 10% federal limit.

The second technical test of Community Pride is whether it actually performs well as a paint.

The U.S. General Service Administration's "Federal Standard TT-P-29J" is one widely accepted bench mark for measuring the quality of flat interior latex paints. Each batch of

Community Pride was tested against 25 specifications in TT-P-29J, plus several additional standard industry tests.

The results of these 25 tests are outlined in TABLE 1-2.2, below. Here, as before, Community Pride performed extremely well.

TABLE 1-2.2
LATEX PAINT QUALITY TESTS

TEST	ACCEPTABLE VALUES MIN	MAX	RESULTS BATCH 1	BATCH 2	BATCH 3	BATCH 4
WEIGHT/GALLON (LBS.)	N/A	N/A	10.87	10.77	10.87	10.87
TOTAL SOLIDS (% BY WEIGHT)	50.0	–	50.1	47.8	50.0	50.3
VISCOSITY (KREBS UNITS)	82	110	86	87	89	86
VISCOSITY STABILITY	–	120	PASSES	PASSES	PASSES	PASSES
FINENESS OF GRIND	3	–	4	4	3	4
pH	8	10	8.1	8.3	8.2	8.1
APPLICATION BUBBLING	–	NONE	PASSES	PASSES	PASSES	PASSES
DRY TIME (MINUTES)	–	60	PASSES	PASSES	PASSES	PASSES
ODOR	–	NO OBJECTION	PASSES	PASSES	PASSES	PASSES
SAG (MILS)	10	–	12	12	12	12
FLOW	TO	PASS	PASSES	PASSES	PASSES	PASSES
HIDING CONTRAST RATIO (WET)	93	–	PASSES	PASSES	PASSES	PASSES
HIDING CONTRAST RATIO (DRY)	95	–	PASSES	PASSES	PASSES	PASSES
SCRUB RESISTANCE (CYCLES)	400	–	PASSES	PASSES	PASSES	PASSES
WATER RESISTANCE	TO	PASS	PASSES	PASSES	PASSES	PASSES
WASHABILITY	TO	PASS	PASSES	PASSES	PASSES	PASSES
REFLECTANCE (%)	95	–	PASSES	PASSES	PASSES	PASSES
GLOSS 60 DEGREES/85 DEGREES	3	10	4/7	5/7	5/5	5/6
CONDITION IN CONTAINER	TO	PASS	PASSES	PASSES	PASSES	PASSES
WORKING PROPERTIES	TO	PASS	PASSES	PASSES	PASSES	PASSES
FLEXIBILITY (INCH)	1/4	–	PASSES	PASSES	PASSES	PASSES
FREEZE-THAW RESISTANCE (KU)	–	5	PASSES	PASSES	PASSES	PASSES
APPEARANCE OF DRIED PAINT	TO	PASS	PASSES	PASSES	PASSES	PASSES
COMPATIBILITY	TO	PASS	PASSES	PASSES	PASSES	PASSES
RECOATING	TO	PASS	PASSES	PASSES	PASSES	PASSES
COLOR	TO	PASS	SEE DRAWDOWN FOR COLOR			

* ACCORDING TO FEDERAL SPECIFICATION TT-P-29

DATA SOURCE: Jarvis Paint; August 29, 1989; "O.J." Johnson, Manager.

Community Pride latex paint passes virtually all federal specifications for which it was tested.

All four batches of recycled latex paint met all federal specifications for which they were tested, with the single exception that Batch 2 failed to meet the 50% Total Solids specification. This batch is only 2.2% off the mark. About half of this shortfall was probably caused by the addition of 8 gallons of rinse water into that batch. Total Solids is the fraction of the paint which is non-volatile. However, in this case it is not a critical quality parameter, since the recycled paint performs very well in opacity tests.

[It is interesting to note that "Mother of Paint" failed the same one parameter, and by a similarly small margin. It, too, had excellent opacity.]

Given the diversity of leftover household latex paint which is turned in, it is remarkable how consistent the quality of Community Pride is between all four batches. Even more remarkable is that these results are also virtually identical to those of the very first batch of recycled paint reprocessed for "Mother of Paint" one year earlier (see TABLE 2.3 in Mother of Paint's final report, dated June, 1989). Paint from both programs is of equal quality.

This demonstrates that recycled latex paint can be sorted and reprocessed to produce a good-quality paint which is consistent between batches.

This ability to attain a uniform, good-quality product which is virtually 100% recycled distinguishes Seattle's paint recycling program from others in North America.

Before the paint can be certified to meet all federal specifications, four tests remain to be conducted: Wet Opacity, Fungus Resistance, Anchorage, and Resistance to Alkali. Several of these parameters may be largely irrelevant to the performance of a flat interior latex. Thus, some slight modifications to TT-P-29J may be appropriate as a standard for recycled latex paint. These are outlined in the third section of this report, Recommendations.

The lab results characterize Community Pride as a medium-quality latex paint -- better than many low-end virgin latex paints now on the market.

FIELD RESULTS

The successful performance of Community Pride in the lab is confirmed by field inspections where it has been used by professional painting contractors.

Field inspections were performed to assess a variety of performance parameters, including color evenness, uniformity of sheen and texture, opacity, bubbles, and soiling.

Because the contacts were made with painting contractors, not the building owners, it was difficult to obtain permission to inspect the sites. Two inspections were arranged: one site was a Renton School District maintenance facility, where Community Pride was applied over several different types of paints. This was an excellent test of Community Pride, since the previous paints were of many different colors, glosses and brands. The finished appearance was of a uniform gloss and color, entirely covering the previous coats. The second site was a new office space, with the paint applied to walls, trim and ceiling. Again the paint performed well, imparting a uniform color and gloss to a variety of substrates.

The findings are summarized below, in TABLE 1-2.3.

TABLE 1-2.3
SUMMARY OF FIELD INSPECTIONS OF RECYCLED LATEX PAINT

TEST	FINDINGS
OBLIQUE INSPECTION	
SHEEN AND GRAIN:	GOOD APPEARANCE ON HEAVY TEXTURED SURFACE.
STRAIGHT-ON INSPECTION	
BUBBLES OR PINHOLES:	NONE
COLOR EVENNESS:	VERY UNIFORM, BOTH IN ONE AND TWO COATS
HIDING:	GOOD HIDING, BOTH SPRAY AND ROLLER
FADING NEAR LIGHT SOURCES:	NONE, TOO NEW.
DIRT BY CONVECTION (VENTS, HEATERS, ETC.):	NONE.
DIRT BY CONTACT (DOORS, LIGHT SWITCHES):	SOME, NEAR DOORS.
ADHESION:	GOOD, ON TOP OF TEXTURE, WOOD AND MDO
OTHER NOTES:	SOME VARIATION AT BRUSH CUT EDGES WHEN VIEWED AT LOW ANGLE IN STRONG NATURAL LIGHT.
OVERALL EVALUATION:	EXCELLENT

Community Pride performs very well in the field. This is the case regardless of how it is applied (sprayed, rolled or brushed), the number of coats (one or two), or the substrate (painted/unpainted, wood or sheet rock). It has some tendency to show dirt marks in highly trafficked areas. This is because Community Pride is very flat, with a fine, but pronounced, grain to its texture.

In addition to field inspections, a survey of painting contractors who used the paint was also conducted. These contractors generally found that Community Pride exceeded their expectations. A list of 10 contractors was provided to Morley & Associates by the retailers who sold the paint. Of those, four responded to our survey questions on the form found in EXHIBITS. Additional feedback was obtained indirectly through the survey of retail store managers. User survey results are outlined below, in TABLE 1-2.4.

TABLE 1-2.4
SUMMARY OF SURVEY OF RECYCLED PAINT USERS

QUESTION	FINDING
HOW WELL DID THE PAINT COVER OR HIDE?	VERY WELL
DID THE PAINT BUBBLE OR SPLATTER?	NONE
WAS THERE DIFFICULTY WITH DRIPPING ON SURFACE OR APPLICATOR?	NONE
WAS THERE UNIFORM SHEEN OR FLATNESS?	YES
WERE THERE ANY PARTICLES OR SKINS?	NONE
DESCRIBE THE PAINT'S DRYING TIME:	NORMAL FOR LATEX PAINT
DID ITS ODOR DIFFER FROM NEW LATEX?	SEVERAL USERS REPORTED A STRONGER ODOR THAT DISAPPEARED AFTER 3 DAYS.

Painting contractors applied Community Pride for a variety of uses, in a variety of ways. It was used both as a primer/sealer and as a final coat. It was used straight and tinted. One contractor had excellent results mixing Community Pride 50/50 with virgin white latex. This extends the virgin paint, lowering costs, and lightens the color of Community Pride.

Representative comments by users of Community Pride include:

"It's better than a lot of low-end paints," and

"Its coverage was better than expected."

TESTING SUMMARY

In summary, Community Pride recycled interior flat latex performed well in the laboratory, and in actual usage. It is a medium-quality paint which out-performs some low-end virgin latexes.

B. MARKETING

Community Pride was test marketed from January through May, 1990, through 19 retail paint stores which cater to professional painting contractors. Of approximately 2,900 gallons, slightly more than one-fifth (657 gallons) sold at $5.00 per gallon.

One can extrapolate that by year's end, half of the paint (about 1,575 gallons) would have been sold if sales had been allowed to continue.

In hind sight, the test marketing effort restricted paint sales in several ways:

- The market test was too brief to allow Community Pride to develop a brand identity, user loyalty, or to capitalize on word-of-mouth advertising; and

- Sales were directed towards the most difficult market niche -- sales were not directed at other niches: homeowners and public institutions.

Given these restrictions, a survey was conducted of sales staff at the 19 retail outlets to learn why more contractors did not purchase Community Pride. This issue was important since, as discussed in the preceding few pages, paint contractors who bought and used Community Pride were pleased with its performance.

TABLE 1-2.5 on the next page summarizes the survey results. Store managers and some salespeople were asked questions in three categories: Feedback from Users, Feedback on Sales and Future Sales.

Based on the survey, the most significant impediment to contractor sales was the color of Community Pride's tint base. It was simply too dark for most applications in the commercial market for interior paint.

Those who purchased Community Pride most commonly used it as a primer or sealer over new sheet rock. A number of painting contractors who used Community Pride as a final coat blended it with new white paint to lighten its shade.

Sales volumes at different retail outlets varied significantly. The key seemed to be whether the store had a sales person who took a personal interest in selling Community Pride. Perhaps the strongest lesson about how to improve retail outlet sales is that much more must be done to educate, excite and motivate the sales staff. Several retailers suggested using spiffs, direct commissions to sales staff.

Several stores also noted that inquiries about Community Pride rose and fell with the presence or absence of news coverage about the paint. In the future, a paint recycling program could not depend on continued free news coverage. This underscores the need for regular paid advertising. Our market test had no advertising budget.

And while a number of paint industry representatives have recommended not selling to homeowners, stores where homeowners dominated the customer base had higher sales

volumes. This suggests that Seattle area residents are motivated by a recycling ethic, and may also be attracted by Community Pride's low cost.

This makes sense since the price differential is significantly larger for the residential market ($2/gallon and more) than for professional paint contractors. Both Parker and Preservative Paint companies offer paint contractors a virgin low-end white latex at a comparable price to Community Pride.

TABLE 1-2.5
SUMMARY OF SURVEY OF RECYCLED LATEX RETAILERS

QUESTION	FINDING
FEEDBACK FROM USERS	Sales staff reported little feedback on Community Pride. Since any feedback tends to be negative, its lack indicated customer satisfaction. Sales staff recalled very few comments from contractors other than general ones that it worked "fine". No comments were reported from a second type of users, homeowners/apartment renters. The most indicative comment there was, "I sold them the paint and I never saw them again."
FEEDBACK ON SALES	
WHAT KIND OF CUSTOMERS WERE BUYING IT?	Primarily contractors, approximately 70-90%.
FOR WHAT USES WAS IT PURCHASED?	Mostly used as a sealer over drywall, or blended with new white paint as a second coat. A minority used it as a top coat.
WHY DIDN'T MORE PEOPLE BUY THE PAINT?	Color. Every respondent cited color as the main drawback. "Seattle Beige" was too dark and a perceived lack of other tint options didn't help. Some prospective buyers who had not used it before also had reservations about whether the paint was of sufficient quality.
WHY DID PEOPLE BUY THE PAINT?	Mainly price. A few bought because of a recycling ethic.
WHAT IS THE CHEAPEST PAINT YOU CARRY?	Range of $5.25 to $10, with 12 of 13 between $6 and $10.
FUTURE SALES	
HOW SHOULD IT BE SOLD IN THE FUTURE?	Through paint stores. Some suggested direct sales to government agencies, if the paint can be documented to meet government specifications.
WHAT KINDS OF USERS?	Market mainly to contractors, a number advocated sales to government agencies. Some retailers advised not to give much effort to selling to homeowners, while others suggested that they be targeted.
WHAT TYPE OF PRICE RANGE?	Most retailers said to keep price at $5.00. A few said to lower it to overcome resistance to the color.
WHAT CAN WE DO TO IMPROVE SALES IN A FUTURE PROGRAM?	Make the paint as light as possible, given restrictions of the raw material. Improve advertising and marketing of contractors, and education and incentives to salespeople.

These results suggest that Community Pride can find a market, but that sales efforts must be targeted. Several changes in the market strategy are warranted:

- Aim for specific contractor niches (such as primers and paint blending); and
- Don't just sell to contractors, but also: Governmental Agencies
  Homeowners

These and other recommendations for marketing recycled latex are outlined below, in TABLE 1-2.6.

TABLE 1-2.6
RECOMMENDATIONS FOR IMPROVING PAINT SALES

- Lighten the paint's color;
- Provide spiffs or other incentives to sales staff;
- Promote the paint as a primer/sealer;
- Offer it as a blend with white latex;
- Target contractors and applications which use beige, muted tints, or dark colors;
- Consider selling the paint to homeowners; and
- Sell the paint to public agencies

C. OVERVIEW OF OTHER LATEX PAINT RECYCLING PROGRAMS

To help put Community Pride in context, a survey was conducted of other latex paint recycling programs in the United States.

Recycling leftover latex paint is a relatively new phenomenon. At present, it is concentrated in the western United States; in California, Oregon and Washington, as described below.

CALIFORNIA

MAJOR PAINT COMPANY: A variety of California communities recycle leftover household latex paint using the services of the Major Paints division of the Standard Brands. Major Paint reprocesses the paint provided by each community and returns it (plus 10%) to the agency that supplied it. Major Paints services the cities of San Francisco, Sacramento and Ventura; and the counties of San Bernardino, Ventura, San Diego and Contra Costa. Major Paint provides this service for an "at cost" price, described further, below.

The blending process used by Major Paints yields a blended product which contains only about 10% recycled leftover household latex paint. Major Paint routinely rinses its processing vats with water. This rinse solution is left to settle in a supernatant tank, where the paint solids in the rinse settle to the bottom and much of the water is decanted out, leaving a thin latex paint. This is then mixed with a small amount of leftover household latex paint. Subsequently, new emulsion, pigments and other virgin constituents are added to manufacture a beige latex paint which is about 10% recycled. Advantage: consistent quality paint. Disadvantages: some color variation between batches, low recycled content, processing capacity limited by the volume of rinse water and the 10% blending ratio.

Major Paint reports that they are nearing their capacity limit for recycling paint in this manner. In the past few years there has been a large increase in the amount of leftover household paint sent to them. For example, the city of San Francisco sent 1,000 gallons for reprocessing in all of 1988; but matched this in only the first half of 1989.

Major Paint originally offered recycling for $2.00 per gallon, at or below true cost, as a community service. Because of the extraordinary volume of paint processing requests, they can no longer afford to do so, and have recently raised the per gallon charge to $2.83. An additional price hike up to the $3.00 range may be imminent. Major Paint would like to see other paint companies offer the same service to ease its capacity problem.

SAFETY SPECIALISTS, INC.: This company serves primarily the Santa Clara County area, but its range is significantly larger -- it has even recycled latex paint from Portland, Oregon. In contrast to Major Paint, Safety Specialists is a hazardous waste management firm which contracts with a variety of communities to run household hazardous waste collection events, or to simply handle their wastes. Paint recycling grew out of Safety Specialists' desire to find economical alternatives for disposing of leftover latex. As part of its household hazardous waste services, it sorts the paint, reprocesses it, and arranges sales procedures for the agencies involved.

Safety Specialists charges sponsoring agencies $2.50 per gallon for collecting and handling the leftover latex, and then sells the recycled paint to volunteer and civic groups for $1.00 per gallon. The sales price will shortly go to $3.00 per gallon.

Leftover latex paint is reprocessed in a sort-bulk-filter procedure. The paint is first sorted and bulked into ten different light colors, plus an additional five dark colors set aside to be used as tints. Each color is bulked in 55-gallon drums and then filtered through a coarse 60 mesh screen into 250-gallon batches. Colors vary significantly between batches. The only quality control testing done so far has been UV light exposure to test fading characteristics. Advantages: firm helps market the paint, paint content is 100% recycled, paint is used in exterior applications (e.g. anti-graffiti). Disadvantages: little quality control -- color and quality variation between batches; little reprocessing; coarse texture.

Volumes handled by Safety Specialists vary because the firm relies mainly on individual round-up contracts for their paint supply. In the last 14 months Safety Specialists has recycled 15,000 gallons of latex paint, an average of 1,071 gallons a month. Safety Specialists' Gavin Brownlie projects this quantity as increasing over time, but can not quantify, due to the fluctuating nature of the business.

S.E.M. INC.: This company acts as a contractor to San Mateo county to reprocess the county's latex paint. The county sorts and delivers the paint and SEM uses a sort/bulk procedure to produce a low grade paint. The finished product is then returned to the county for internal use.

SAN DIEGO COUNTY: The county has collected and recycled latex paint as part of its household hazardous waste collection program for more than one year, using a combination of round-ups and fixed-site collection sheds. The paint is sorted it by color and bulked on site as it is, into 55 gallon drums. The paint is then distributed free to governmental agencies for their graffiti eradication programs. There are no other uses for the paint. Advantages: cheap and easy to do. Disadvantages: inconsistent color from batch to batch and little quality control.

CITY OF SAN FRANCISCO: Norcal, the City's contractor, receives latex paint through a household hazardous waste collection shed at its transfer station. Most of the paint is sent to Major Paint. A moderate amount of unused paint is given away to the public at the site through a paint swap. Reprocessed paint is given away to governmental agencies and civic and volunteer organizations.

CALIFORNIA PAINT RECYCLING TASK FORCE: This program is just starting up and many of its details are not yet finalized. The Task Force is initiating a pilot program to use Major Paint for reprocessing latex collected through local household hazardous waste programs. What is most innovative in this pilot program is a plan to give the recycled paint to the state's General Services Agency. Already, one building has been painted at the State Fair site in Sacramento. One option being explored is having the state's prison population do the reprocessing and this has met with a somewhat positive response from the paint industry. There is also a bill currently pending in the state legislature that would make it possible for household hazardous waste collection sites to accept Small Quantity Generator

wastes on a limited basis.

OREGON

PORTLAND METRO: The Metropolitan Service District (Metro) has planned a pilot program to recycle latex paint gathered at its household hazardous waste round-up in October, 1990. The program is modeled after Seattle's "Mother" and "Son" projects, and will produce a consistent, good quality recycled latex paint for subsequent marketing. Metro staff has already drafted a procurement ordinance to ensure Metro itself will be a major purchaser of the paint. Plans are underway to launch a permanent paint recycling program in 1991, when two permanent collection sheds will open.

Metro's latex recycling program differs from Seattle's in that it will attempt to produce a darker exterior latex paint in addition to the light interior. If successful, this may raise the recycling yield from about 50% of all latex collected, up to as much as 75%.

WASHINGTON

SNOHOMISH COUNTY: This year the county initiated a Paint Swap, in addition to its annual household hazardous waste round-up. The Swap was intended to reduce the volume (and disposal cost) of paint collected at the round-up, by first giving residents an opportunity to donate their paint to be given away to all comers. Approximately 25% of the paint was given away in this manner. After the Swap, any excess (about 75%) was sent to a hazardous waste disposal site.

An interesting note is that the age breakdown shows the majority of users in 1990 to be over 50 years of age (over 65:28%, 51-65:25%, 31-50:42%, 21-30:4.7%, under 21:.3%). The paint is inspected, but it is left in its original containers and given away. Advantages: the cheapest and easiest alternative. Disadvantages: space and traffic-intensive; much more paint is collected than is taken away; little control over paint quality.

SEATTLE ANTI-GRAFFITI SQUAD: At the last (ever) Seattle-King County Household Hazardous Waste Round-Up on June 3, 1989, the majority of the latex paint turned in at the Bellevue site was given to the Engineering Department for use on public buildings to cover graffiti. Off-the-cuff estimates of usage rates put the average at 50 gallons per week, and they had not used it all up a year later, by June 1990. Costs were minimal, using volunteer help to collect and sort it.

MINNESOTA

HENNEPIN COUNTY: In the spring of 1990 the county had excluded latex paint from its household hazardous waste collection program, in order to stay within its HHW budget. It had elected to incinerate the latex paint collected by a series of round-ups at an approximate cost of $10 per gallon, which, due to the large volume of latex paint being collected, would have exceeded the budget for 1990 by approximately 30%. This left no legal disposal option for household latex paint, since it was not legal to dispose of it at a landfill, and householders could not give it to the county. One effect of the latex paint exclusion was that collection quantities of other HHW's decreased. Apparently many people were bringing other HHW's only because they were already bringing latex paint. Consequently the county Board of Commissioners decided to include latex paint in the list of HHW's accepted at the new transfer station at Brooklyn Park, opening August 6, 1990. The county plans to open three more transfer stations over the next four years, continue a program of round-ups and start a wastemobile similar to the one King County in Washington state is using. They are now exploring the possibility of recycling or otherwise recovering latex paint.

III. PROGRAM RECOMMENDATIONS

Based upon Seattle's two successful latex recycling pilots, this section recommends steps for establishing a permanent recycling program at Seattle's two Collection Sheds in 1991.

The pages below describe the technical details of the program, evaluate the market for the paint and its economics, address regulatory issues, and begin to explore whether paint recycling may be extended to include other jurisdictions and leftover paint from commercial sources.

A. DESCRIPTION OF AN ON-GOING PROGRAM

The volume of household-generated leftover latex paint which Seattle may collect is projected for each year through 1995 in TABLE 1-3.1. Residential use of Seattle's north and south Collection Sheds is expected to increase significantly during this period.

Slightly more than 45% of the latex paint turned in at the Collection Sheds is anticipated to be recyclable. Yearly volumes of recyclable latex are projected to amount to 11,000 gallons in 1991, increasing to 56,000 gallons by 1995. The methodology for projecting these volumes is discussed in more detail in the APPENDIX of this report.

TABLE 1-3.1
PROJECTED VOLUMES OF LEFTOVER LATEX PAINT
[As Collected at Seattle's Collection Sheds, 1991-95]

	1991	1992	1993	1994	1995
DRUMS OF LATEX (LOOSE PACK)	1,995	4,242	5,683	7,614	10,201
TOTAL LATEX GALLONS @ 12.27 gal/drum	24,479	52,049	69,730	93,424	125,166
RECYCLABLE GALLONS (45.4% of Total)	11,113	23,630	31,657	42,415	56,825
LANDFILL GALLONS (50.8% of Total)	12,435	26,441	35,423	47,459	63,584
HAZ WASTE GALLONS (3.8% of Total)	930	1,978	2,650	3,550	4,756

In an on-going paint recycling program, all latex would be sorted on-site at the City's north and south Collection Sheds. Leftover household latex will be sorted by Shed staff into three categories (recyclable, disposable, and hazardous). The recommended sorting protocol to segregate the recyclable fraction closely resembles that used in the Son of Paint project, and is outlined in TABLE 1-3.2 and is described in the pages which follow.

TABLE 1-3.2
SORTING PROTOCOL

TYPE OF PAINT	RECOGNITION TRAIT	HANDLING METHOD
Empty/dried cans	Weight, no liquid	Dumpster
Solvent paint, lacquers, stains, unknowns	Label, appearance, odor	Hazardous Waste
Lead latex	Old label, color (white, orange, yellow)	Hazardous Waste
High-mercury latex	Label	Hazardous Waste
Dark latex	Color (darker than paint chip)	Disposable Latex
Sour latex	Odor	Disposable Latex
Frozen latex	Appearance ("sawdust")	Disposable Latex
Physically compromised latex	Appearance	Disposable Latex
White latex	Color	Recyclable Latex (White)
Light latex	Color (lighter than paint chips)	Recyclable Latex (Light)

The revised protocol differs from our recent pilot only in how colors are segregated. First, to lighten the color of the final product, the dividing line for accepting and rejecting colors is raised slightly. Sorters will be given a pastel paint chip which represents the darkest

acceptable shade for each major color group (red, blue, green, yellow, grey, brown, etc.). Second, to prevent the final product from being too yellow, the yellow chip will be especially light. And third, to give the manufacturer more control over color depth, sorters will bulk whites separately from light pastels. This will allow the paint manufacturer to vary the proportion of white-to-pastel in the batching process to achieve the proper color depth.

Necessarily, rejecting more leftover paint to lighten the final product's color will reduce the yield of paint recycling. That is why TABLE 1-3.1 shows only 45.4% of leftover paint as recyclable, while we obtained an actual yield of 47.8% in Son of Paint.

Sorting crews will require specific training in how to conduct the sorting protocol.

Solvent paint, lacquer and stain can be recognized by a number of means. The front panel of the label does not say "latex" and instead may say "alkyd", "lacquer", "stain", or "urethane". The side warning panel will read "combustible", "flammable" or "inflammable". Cleaning instructions say to use paint thinner or mineral spirits. An ingredient list may include mineral spirits or petroleum distillate, not water or glycols. The paint itself may have a skin on top of liquid paint (latex does not). It may look different than latex, and it smells like solvent. Any paint which fits this description is not latex, and should be disposed as a hazardous waste.

Recognizing lead-pigmented paint requires sorters to be very aware of the signs for which to look. Any paint with a label which may predate 1973 is suspect. Read the label to see if it lists lead. Even if it doesn't, any pre-1973 paint which is a white "exterior wood primer" or a "stain resistant primer" is likely to contain lead. Bright orange or yellow paints which predate 1973 should also be rejected. Paints which contain lead can also be recognized by their weight -- they're unusually heavy. Paints which may contain lead should be disposed as a hazardous waste.

Some paint with high levels of mercury can be recognized by its label. Paints which are "mildew resistant" or "anti-fungal" likely contain high mercury levels. Any paint which lists phenyl mercuric acetate (PMA) phenyl mercury oleate (PMO) or phenyl mercury succinate has mercury in it. These paints should be disposed as a hazardous waste.

Dark latex is not inherently non-recyclable, but simply has a low market value. Sorting crews will be provided with paint chips of the darkest acceptable colors for recycling. Any paint darker than this guide should be disposed (as a hazardous waste, or, with testing, as a non-hazardous solid waste).

Sour latex is paint whose biocides have failed, allowing bacteria to grow in the paint. It smells rotten, and its odor is unmistakable. Sour latex should be disposed (as a hazardous waste, or, with testing, as a non-hazardous solid waste).

Frozen latex is paint which has gone through freeze-thaw cycles, causing its emulsion to fail. The paint solids are no longer in suspension, and a precipitate forms which looks grainy. Advanced cases look as though sawdust had been added to the paint. Frozen latex should be disposed (as a hazardous waste, or, with testing, as a non-hazardous solid waste).

Only white and light colored latex which survives all of the rejection criteria above is suitable for recycling. White and light paint will be bulked separately to enable the paint manufacturer to adjust color depth by varying the mix of light and white.

Sorting will be conducted by Collection Shed staff. In order to streamline sorting, an industrial can opener would be purchased for each Shed to reduce time spent prying open can lids. On this basis, it is estimated that it will take 3 1/3 minutes to sort and bulk each full gallon of latex.

Drums of recyclable latex will be accumulated (on site, or at a paint manufacturer) until there is enough to reprocess in a 1,000 gallon batch.

Sorted paint will be shipped to a paint manufacturer for reprocessing. The manufacturer will mix the white and the light latex to attain the proper color depth, mix it, and draw a sample for testing.

Any excess volume of light latex will be held for blending with a subsequent batch. If excess light latex continues to accumulate over successive batches, it can simply be disposed of. Alternately, Collection Shed staff can simply sort paint to a lighter standard.

Basic steps for reprocessing the batched paint are outlined in TABLE 1-3.3.

TABLE 1-3.3
STEPS TO REPROCESS LATEX PAINT

1.	MIX WHITE & LIGHT PAINT TO ATTAIN COLOR DEPTH
2.	TEST FOR HEAVY METALS AND GLYCOL LEVELS
3.	TEST TO DETERMINE REPROCESSING NEEDS [density, percent solids, contrast ratio, leveling, sag, bubbling, grind, gloss, and color]
4.	PREPARE LABEL AND MSDS
5.	ADD ADDITIVES PER TEST RESULTS
6.	ADD PIGMENTS TO ADJUST COLOR
7.	MIX USING A HIGH SPEED DISPERSER
8.	FILTER WITH A VORTI-SIEVE (100 MESH)
9.	QUALITY CONTROL TESTS
10.	CAN PAINT

The concentrations of lead, mercury, and ethylene and diethylene glycols must be tested to determine whether the paint is recyclable, and to meet labeling and Material Safety Data Sheet (MSDS) requirements.

Additional tests by the manufacturer are necessary to determine which adjustments must be made to the paint to bring it to quality specifications. These tests include density, percent solids, contrast ratio, leveling, sag, bubbling, grind, gloss, and color.

Before the paint is reprocessed, a label and MSDS must be prepared. It is anticipated that these could be prepared once and reused for successive batches. [Please see §E, below, for more information about preparing an MSDS.]

Based on results from initial testing, the manufacturer could add a variety of additives to bring the paint to specification. These may include ethylene glycol to raise freeze resistance, hydroxy ethyl cellulose to adjust viscosity, odor masks, biocides, and a variety of other additives. Pigments (titanium dioxide or tints) would also be added as needed to bring the color to specification.

Additives and pigments will be thoroughly mixed into the paint using a high speed disperser. The final product will be filtered using a 100 mesh (rather than the 150 mesh originally used) screen. Using a coarser mesh will increase the paint's grind size somewhat, but will greatly speed reprocessing efficiency.

The paint will be retested to assure quality control, and consistency between batches. The paint will be canned and labeled in 5- and 1-gallon containers, and will be ready for sale.

TABLE 1-3.4 proposes specifications for an on-going program to recycle flat interior latex paint.

TABLE 1-3.4
RECOMMENDED SPECIFICATIONS
FOR RECYCLED FLAT INTERIOR LATEX PAINT

CHARACTERISTIC	ACCEPTABLE VALUES MIN	MAX
QUANTITATIVE:		
CONSISTENCY (KREBS UNITS)	82	110*
TOTAL SOLIDS (% BY WEIGHT)	45	–+
DRY HARD (MINUTES)	–	60*
85° SPECULAR GLOSS	3	10*
FINENESS OF GRIND	1	–+
LEAD CONTENT (% BY DRY WEIGHT)	–	0.06%*
HIDING CONTRAST RATIO (REWETTED)	93	–*
HIDING CONTRAST RATIO (DRY)	95	–*
QUALITATIVE:		
CONDITION IN CONTAINER	TO	PASS*
STORAGE (VISCOSITY) STABILITY (KU)	77	115*
COLOR	TO BE DETERMINED+	
FLEXIBILITY (INCH)	1/4	–*
WORKING PROPERTIES	TO	PASS*
APPEARANCE OF DRIED PAINT	TO	PASS*
ANCHORAGE (INCH)	–	1/16*
SCRUB RESISTANCE (CYCLES)	400	–*
WASHABILITY	–	10%+
WASHABILITY AT 85°	–	20%+
REFLECTANCE (%)	95	–*
FREEZE-THAW RESISTANCE (KU)	–	–+
WATER RESISTANCE	TO	PASS*
ALKALI RESISTANCE	–	–+
RESISTANCE TO BIOLOGICAL GROWTH	TO	PASS*
RESISTANCE TO REFLECTANCE VARIATION	TO	PASS*
RECOATING	TO	PASS*
ODOR	TO	PASS*
OTHERS:#		
pH	8	10#
APPLICATION BUBBLING	–	NONE#
SAG (MILS)	10	–#

* Per TT-P-29J + Deviation from TT-P-29J # Addition to TT-P-29J

B. MARKETING

To be successful, a latex paint recycling program must be accompanied by three conditions:

- A waste supply of leftover latex paint;
- A technology to reprocess the paint; and
- A market to purchase and use the recycled paint which results.

In Seattle, the first two conditions clearly are met. A continuing supply of leftover latex paint is readily available through the City's two Household Hazardous Waste Collection Sheds. Likewise, as described by this report, the technology for sorting and reprocessing the paint is clearly available. This has been as documented in the Findings section, above.

This leaves the third condition -- the availability of a market -- as the remaining issue to resolve. Section II, Findings, described the results of a five month effort to test market painting contractors.

On one hand, the 650 gallons which were sold, and the product satisfaction among the contractors who bought it, suggests that developing a viable market niche in the future among painting contractors is feasible. On the other hand, the market test also demonstrated that this niche is not yet sufficiently developed to support a full-scale paint recycling program.

Section II identified two other potential markets: homeowners and public agencies.

Like the market with painting contractors, the homeowner market shows good potential, but is not yet realized. Without further development, it is not sufficient to support an on-going paint recycling program.

It therefore is apparent that sales to public agencies will play a critical role if an on-going recycling program is to be launched.

Based upon discussions with a number of public agencies, it appears feasible to establish sufficient agency sales to support a full-scale paint recycling program.

The sales potential of the City of Seattle, the Seattle and King County Housing Authorities, King County, and Washington State were assessed, and are described below. In each case, the timing for establishing a market for recycled latex paint is excellent.

CITY OF SEATTLE

As the jurisdiction which has taken the lead in recycling leftover latex paint, it is logical that the City of Seattle should wish to help sustain an on-going program by purchasing and using Community Pride.

The time is ideal for establishing a City market for recycled latex: the City's Purchasing

Department recently drafted a procurement ordinance for adoption by the Seattle City Council.

Entitled the "Seattle Recycled Product and Hazardous Waste Reduction Procurement Policy", its purpose is to,

> "**promote market development of recycled ... products derived from waste streams that City government manages** for City residents or businesses, and products that reduce the use of hazardous substances and/or generation of hazardous wastes by establishing preferential purchase programs applicable to City departments and City contractors ...." [Emphasis added]

The ordinance also states that no bid specifications may discourage the use of recycled products unless a waiver is granted by the City Purchasing Agent. It also establishes a price preference for designated commodities.

The policies adopted in the ordinance establish a sound basis by which the City can begin a procurement program for recycled latex paint. Because the ordinance does not specifically address recycled latex, the Seattle Solid Waste Utility will have to work with the Purchasing Office to ensure the ordinance is implemented effectively in this endeavor.

If the City's paint procurement practices are altered by the ordinance, it has the opportunity to become a major purchaser of recycled latex paint. Several City departments are large users of latex paint. For example, Seattle City Light's operations within Seattle use 50 - 100 gallons of interior latex paint each month. Additional paint is used at City Light's Skagit facility.

Other major users of latex paint include the Department of Administrative Services, the Department of Parks and Recreation, and Seattle Center. Unfortunately, these agencies did not furnish information about how much paint they use -- but the volume is significant.

SEATTLE HOUSING AUTHORITY

The bulk of the paint that the Seattle Housing Authority uses is latex paint, both interior and exterior. Solvent-based paints are used only on exterior trim and doors.

In 1989 the Authority used approximately 13,500 gallons of interior latex paint, of which 98% was the color described as "eggshell white", a popular off-white color. Records for the use of exterior latex are not clear, but staff estimates the use of 6,000 gallons in 1989 for the miscellaneous light colors.

KING COUNTY HOUSING AUTHORITY

The King County Housing Authority is an independent public agency, separate from King County. It provides low-income housing throughout the area. The Housing Authority uses large quantities of flat interior latex paint to maintain its housing units.

Housing Authority staff estimates that the Authority uses 5,000-6,000 gallons of interior latex per year. 70-80% (3,500-4,800 gallons) is a "Cuban Sand" color, which is similar to the color of Community Pride recycled latex, though slightly more yellow.

The Housing Authority has purchased its interior latex paint through a H.U.D. contract for $7.00 per gallon. To reduce this cost, the Housing Authority plans to begin procuring paint directly through an open bid process. Staff reports that the bid request will probably be for a one-year contract to supply paint to the agency. They expect to publish a request for bids late summer or early fall, 1990.

Housing Authority staff reports that Community Pride would have to meet three criteria before the agency would consider purchasing it. The first criterion is that the paint must meet acceptable limits for lead content. The Housing Authority tests for lead levels using an X-ray test of dried paint film, with a limit of 1 mg of lead per square centimeter. Based on Community Pride's measured lead content of 0.00248 - 0.0136%, it is anticipated that this test can be met with ease.

A second Housing Authority criterion is that the paint must be acceptable to the paint crew. During the first pilot recycling program ("Mother of Paint") recycled latex was tested at the Housing Authority's Springwood Apartments. Since then, the product has been further improved. Additional discussions with Housing Authority staff should be conducted to ensure the paint receives their approval. Issues of particular interest to staff will be color, hiding and coverage, and handling properties.

The agency's third criterion is that the paint be competitive in price. In large volumes, Community Pride paint has sold for $4.50 per gallon, compared to the $7.00 price the agency currently pays through HUD.

The projected production of Community Pride recycled latex in 1991 is 11,113 gallons. If the agency used Community Pride, the King County Housing Authority alone could consume 32-43% of the year's total production of recycled latex paint. Moreover, in doing so, the Housing Authority could save between $8,750 and $12,000 as compared to current expenditures.

KING COUNTY

King County has already adopted a Procurement Policy to promote the purchase of recycled products like Community Pride. Like Seattle's, King County's ordinance establishes a price preference for recycled products.

However, the major hurdle which obstructs purchase of recycled latex is not price, but product specifications (such as color, freeze-thaw resistance, or others) which might arbitrarily preclude its use.

King County Solid Waste Division staff has signaled its desire to develop purchasing practices which encourage use of recycled latex, rather than discriminate against it. Staff has identified several means (such as Executive Order) for mandating specifications which

eliminate these barriers and which establish an affirmative policy to use recycled latex.

If this policy is put in place, King County too will become a major market for recycled latex paint.

WASHINGTON STATE

At present, Washington State procures paint through a variety of means. For example, the Department of General Administration takes bids and issues contracts for two types of paint: one is traffic line paint only; and the other is a wide variety of architectural coatings. The state holds contracts for these paints with "various vendors". The contracts are usually for one year and can be extended by mutual agreement between the state and the vendor.

In addition, each state agency also has a limited ability to buy paint on its own, outside of the General Administration contract. Each agency has its own specifications and procurement process. General Administration exerts little control over these purchases, and does not even track the quantity of paint procured in this manner.

In 1988, the Washington State Legislature passed a law authorizing the General Administration to use price preference to encourage the purchase of recycled products. The Department of General Administration and Department of Ecology are presently drafting a "Rule on Bid Preference" to put the law into practice. The rule should be ready for the Governor's signature by the end of September, 1990.

As presently drafted, the rule would establish a 10% price preference for all paint containing at least 15% recycled material (including processing waste from manufacturing). As currently drafted, the policy provides virtually no preference for increasing the recycled content above 15%. Only in the event of an even price tie would a 100% recycled paint receive preference over a 15% recycled paint.

In addition, the proposed rule does not address changing State paint specifications which might arbitrarily preclude recycled paint.

Morley & Associates has been invited to review the draft rule and recommend changes to improve how it applies to recycled latex paint. If the rule is revised to effectively promote recycled paint procurement, Washington State could become a major user of recycled latex.

Additional legislation addressing these issues may also a possibility in the 1991 Legislative Session. However, a number of procurement bills were introduced in the last few years and died.

SUMMARY

In summary, the five jurisdictions described above appear to have the capacity to consume all latex produced through an on-going paint recycling program. Moreover, there are many more jurisdictions to turn to than these.

TABLE 1-3.5 lists more than fifty agencies that are potential users of Community Pride.

TABLE 3.4
POTENTIAL MARKETS IN
GOVERNMENTAL AGENCIES IN WASHINGTON STATE

City of Seattle:	Department of Administrative Services
	Purchasing Office
	City Light Division (& Skagit Project)
	Parks and Recreation Department
	Seattle Center
Housing Authorities:	Seattle Housing Authority
	King County Housing Authority
	Renton Housing Authority
King County:	Executive Administration Department
	Facilities Management Division
	Public Works Department
	Natural Resources & Parks Division
	Department of Human Services
	Department of Health Services
	Kingdome Stadium
Suburban Cities	
Washington State:	Department of General Administration
Metro:	Transit Division
	Water Quality Division
Port of Seattle	
School Districts:	Seattle
	Other districts within King County
Community Colleges	
University of Washington	

A reliable mechanism for selling Community Pride to these public agencies must be put in place. Indeed, a permanent recycling program should not commence until this mechanism is established and the market is secured.

Such a market to public agencies would allow the paint recycling program to get off the ground successfully. Once operating in this manner, there will be an opportunity to develop ancillary markets with painting contractors and homeowners. It is these additional markets which will accommodate future growth.

In the future, Community Pride should be marketed to painting contractors as a primer and as a low-cost paint extender which can be blended with new white paint. Community Pride

should be offered to homeowners as a low-cost, environmentally-sound latex paint. It should be offered through homeowner-oriented retailers which target cost-conscious and/or environmentally-concerned consumers. Examples might include large retailers such as Fred Meyer, Pay 'N Save, Pay 'N Pak, and Ernst; and smaller retailers such as City People's Mercantile.

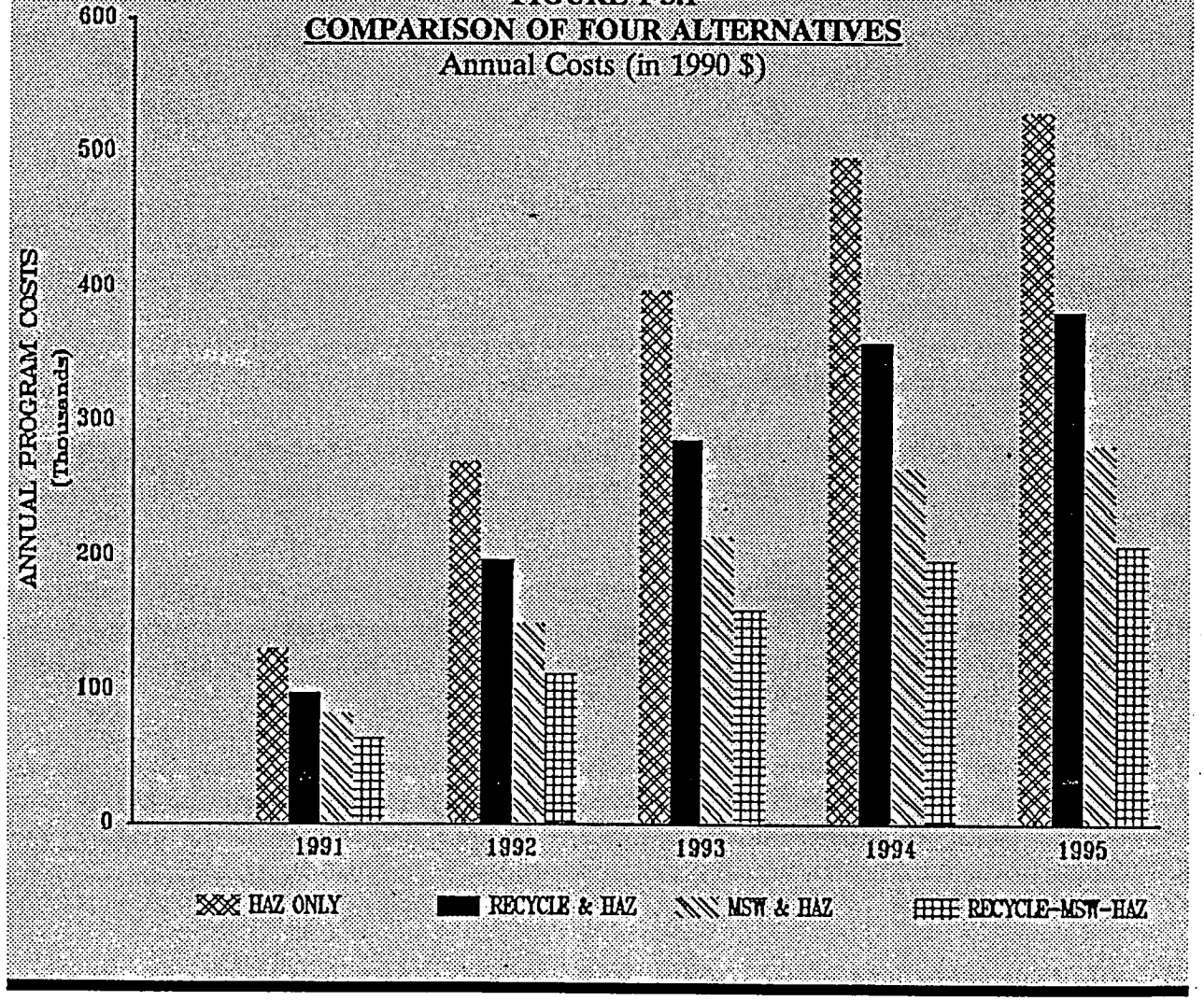
A latex paint recycling program can be successfully launched, provided that a market to public agencies is put in place first. Because many agencies are currently revising their procurement policies to promote recycling, the timing is ideal for establishing this public agency market. In the future, additional markets can be developed for painting contractors and homeowners which will accommodate significant future growth.

C. ECONOMIC ANALYSIS

The economics of an on-going latex paint recycling program appear to be excellent. FIGURE 1-3.1 compares the cost of four latex paint management alternatives in years 1991-1995:

- Hazardous Disposal only (100%);
- Recycling a portion (45.4%), and Haz. Disposing the rest (54.6%);
- Landfilling a portion as MSW (96.2%), and Haz. Disposing the rest (3.8%); and
- Recycling a portion (45.4%), Landfilling a portion (50.8%), and Haz Disposing the rest (3.8%)

FIGURE 1-3.1
COMPARISON OF FOUR ALTERNATIVES
Annual Costs (in 1990 $)



The fourth option (recycling 45% of the paint, landfilling 51% of the paint as MSW, and disposing of the remaining 4% as hazardous waste) is the most economical. It cuts current disposal costs by 60%.

Starting next year, this combined recycling and disposal program could net savings for the City of Seattle which are worth $67,500 in today's dollars. By 1995, the present value of the program's savings could be $322,000 for that year alone.

This combined recycling option is 25% less expensive than landfilling a majority of the paint and disposing of the rest as hazardous waste.

In the event that latex paint can not be landfilled as a municipal solid waste, a program which recycles 45% of the paint and disposes the remainder as a hazardous waste would cut current disposal costs by about 25%.

This analysis demonstrates that there would be a significant cost to the City in not recycling leftover latex.

Detailed spreadsheets which project the costs for each option are included in the APPENDIX of this report.

D. INSTITUTIONAL ISSUES

STRUCTURE

An on-going latex paint recycling program potentially places both local government and the paint manufacturing industry into new, unaccustomed roles.

As operator of the Household Hazardous Waste Collection Shed, the Seattle Solid Waste Utility is not accustomed to creating a manufactured product, one which must subsequently be marketed.

Similarly, local paint manufacturers are not accustomed to working with blended waste materials instead of new raw materials. And because sorting is the key to the paint's quality, the manufacturers would be dependent on those who sort the paint -- the City -- for quality control over the product they would manufacture and sell.

Given their preferences, both local government and the paint industry would likely wish to stick to what they are used to. Thus, the City would likely prefer paint recycling to resemble other waste management methods, wherein a contractor simply collects the waste at the Collection Shed, assumes ownership, and independently handles its treatment and final disposition.

In turn, paint companies would likely shy away from assuming ownership and risk for a waste material over which they have little quality control, and for which there is no proven market. At present, paint companies are comfortable reprocessing the material to City specifications, but on a contracted basis, wherein the City retains ownership.

Ultimately, the City of Seattle would like to contract with a company to assume ownership

of the waste paint, recycle it, and sell it. In the immediate future, the paint industry is not prepared to assume that role. However, it would likely do so once the program has operated successfully and a dependable market has been established.

In order to launch a paint recycling program and allow the paint industry to gain more confidence in this new product, an interim operating arrangement will be necessary.

During the program's first one or two years of operation paint reprocessing and sales should be conducted under contract for the City, whereby the City would retain ownership of the paint until its final sale. In addition to contracting for paint reprocessing, the City would also contract with a distributor to manage its sales. This arrangement will allow the program to establish that: 1) the City can exercise consistent quality control during paint sorting; and 2) stable public agency markets for the paint are in place.

After demonstrating these two conditions to the paint industry through one or two years of operation, it should be possible to negotiate a favorable contract with a paint manufacturer wherein they take responsibility and ownership for the paint as soon as it is picked up from the City's Collection Sheds.

FINANCING & BUDGET

An unrelated implementation issue is how the Seattle Solid Waste Utility can finance the start-up of a paint recycling program.

The Seattle Solid Waste Utility projects a 1991 budget for disposing of household hazardous waste turned in at its two Collection Sheds of $367,600. This figure is for disposal only, and does not include labor. Based on past years, 36% of this expenditure will go for latex paint if it is disposed as a hazardous waste. This means the Seattle Solid Waste Utility will likely have $132,000 with which to launch and operate an on-going latex paint recycling program in 1991.

As detailed in a spreadsheet in the APPENDIX to this report, a combined recycling and disposal program for latex paint is expected to have a net operating cost of $64,000. This leaves the Utility $68,000 to finance any start-up costs (such as firming up purchases by public institutions) or to absorb poor sales (sales revenues are currently projected at $50,000 for the year).

E. REGULATORY ISSUES

MATERIAL SAFETY DATA SHEETS (MSDSs)

Federal and State regulations require that a Material Safety Data Sheet (MSDS) be prepared for any manufactured product which may contain hazardous constituents. The MSDS is intended to promote worker safety by listing hazardous ingredients along with pertinent safety and health information.

The ability to meet requirements for a recycled paint MSDS was initially researched in "Mother of Paint". Both Federal staff (Occupational Safety and Health Administration) and State staff (Washington Department of Labor and Industry) then stated that MSDS requirements could be met without extensive testing of each batch. They cited regulatory text to suggest that manufacturers of mixtures (like leftover latex) need only list those hazardous ingredients of which they are aware. Staff suggested that there is no legal responsibility for the manufacturer to conduct tests on a mixture to discover other ingredients which may be unknown. Such tests, if required of each paint batch, would be prohibitively expensive.

This interpretation hinged on regulations for procedures to determine if a mixture is a "physical hazard" [29 CFR 1910.1200(d)(5)(iii) and WAC 296-62-05407(5)(c)].

Subsequently, staff with Washington Department of Ecology questioned the import of "physical hazard". Additional research revealed additional regulatory language which describes testing requirements to measure the health hazards of mixtures.

Federal and State language on health hazards are virtually identical [see 29 CFR 1910.1200(d)(5)(i) and (ii), and WAC 296-62-05407(5)(a) and (b)]. The first section [i and a] outlines procedures (such as bioassays) for testing a mixture to determine whether it poses a health hazard -- these tests are time consuming and very expensive. The second section [ii and b] instead allows the manufacturer to construct an MSDS based on the properties of known constituents of the mixture. It reads in part,

> "If a mixture has not been tested as a whole to determine whether the mixture is a health hazard, the mixture shall be assumed to present the same health hazard as do the components which comprise one percent (by weight or volume) or greater of the mixture, except that the mixture shall be assumed to present a carcinogenic hazard if it contains a component in concentrations of 0.1 percent or greater which is considered to be a carcinogen under WAC 296-62-05407(4)." [WAC 296-62-05407(5)(b)]

Two issues required resolution before an on-going paint recycling program would be feasible. First, which method must be used to develop an MSDS: conducting bioassays on the blended paint, or building an MSDS based on known constituents? Bioassay tests would be very expensive and time consuming; and would likely jeopardize the viability of a paint recycling program.

Both state and federal agency staff now state that an MSDS can be prepared without bioassays. An MSDS can be prepared based on the components in the paint. No bioassay is required.

The second issue is whether extensive testing is required to identify all components that are 1% or even 0.1% of the paint formulation. Conducting chemical assays to identify all of these compounds would be prohibitively expensive.

Both state and federal agency staff state that a list of paint components may be developed based available sources, without extensive chemical tests to identify every component comprising 0.1% or more of the paint.

A list of components for developing an MSDS would be drawn from five sources:

1. The City of Seattle has already conducted tests to identify many constituents in seven samples of blended leftover latex paint. Three samples were tested for during Mother of Paint (total metals, E.P. toxicity, and BNA). Thirteen volatile and semi-volatile organic compounds were identified, as well as the concentrations of eight heavy metals (see the Final Report for Mother of Paint, dated June, 1989). Four other samples of leftover latex have been tested through the disposal portion of Son of Paint (total metals, E.P. toxicity, BNA and VOC). In this case, 24 volatile and semi-volatile organic compounds have been identified, along with the concentrations of twelve heavy metals (see test results in PART 2 of this report).

2. As part of an on-going latex disposal program, it is proposed in PART 2 that similar tests be run once each year on at least one batch of leftover latex. If this practice is adopted, any additional compounds identified would be added to the MSDS annually.

3. Each batch of recycled latex paint will be tested upon manufacture to measure total metals (including lead and mercury) and selected glycols.

4. The list of components developed by the first three means would be supplemented by information drawn from the MSDSs for several brands of new latex paint currently being manufactured.

5. A list of other common latex ingredients drawn up by paint industry technicians.

The list of constituents compiled from these five sources would be researched in the literature to identify health and safety concerns and precautions. Recent EPA data on mercuric fungicides would be included (see below). From this, an MSDS will be prepared.

Staff from both the U.S. Occupational Safety and Health Administration and the Washington Department of Labor and Industry have indicated that an MSDS prepared in this manner would meet regulatory requirements for preparing an MSDS based on the paint's components.

MERCURY

Until recently, mercuric biocides in latex paint have not been regulated. Instead, the paint industry has voluntarily been shifting toward non-mercuric fungicides.

In 1989, a Detroit-area family was exposed to toxic levels of mercury after painting their home's interior. The family's 4-year-old son developed acrodynia, a reaction to toxic levels of mercury in the body.

Their house had recently been involved in a fire, and had been repainted with a latex containing excessive amounts of mercuric fungicides (mercury was present at 930 parts per million, three times the 300 ppm level which is the limit of what has generally been accepted in interior latex).

Concern over this incident has triggered renewed efforts by the U.S. Environmental Protection Agency to regulate or otherwise reduce mercuric biocides in new latex paints.

On June 29, 1990, the U.S. EPA published a notice in the Federal Register entitled "Pesticide Products Containing Phenylmercury and Other Mercury Compounds; Receipt of Requests for Voluntary Cancellation and Amendments to Delete Uses."

In response to the Detroit incident and additional information on the health effects of mercuric fungicides, the EPA approached the four manufacturers of mercuric fungicides, and was able to convince them to voluntarily amend their FIFRA registrations for phenyl mercuric acetate (PMA), di(phenylmercuric) dodecenyl succinate (PMDS), phenylmercuric oleate (PMO) and 3-(chloromethoxy)propylmercuric acetate (CMPA), such that they may no longer be added to new interior latex paints. EPA may seek a similar restriction for mercuric fungicides in exterior paint within the next two years.

EPA staff reports that the change in FIFRA registration only restricts new additions of mercuric fungicides to paint -- it has no direct impact on recycling old leftover latex which already contains mercuric fungicides.

Thus, according to the EPA, producing and marketing a recycled interior latex paint fully complies with the change in FIFRA registration for mercuric fungicides.

According to a recent news release by the agency,

> "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 relabel 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 part 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.**" [emphasis added] (EPA news release; June 29, 1990; page 1).

For an on-going latex paint recycling program, EPA staff recommends that the label be modified to indicate that mercury is present and to emphasize proper precautions.

EPA is sending the City of Seattle a copy of its environmental fact sheet on mercuric fungicides. The environmental fact sheet reviews studies and journal articles on the health risks of mercuric fungicides. It is recommended that the City review the fact sheet and the available literature to confirm that exposure to mercuric fungicides below 200 parts per million in interior latex paint poses an insignificant health risk.

F. APPLICABILITY TO OTHER JURISDICTIONS

Latex paint recycling programs can be established in communities which neighbor Seattle, and in many jurisdictions which collect leftover latex with household hazardous waste elsewhere in Washington and the United States.

A community must meet three criteria in order to successfully initiate a paint recycling program which produces a quality, marketable, paint like Community Pride.

- There must be a ready supply of leftover householder latex paint collected on a regular basis;
- Paint manufacturers must be available with the capability to reprocess the paint; and
- There must be a reliable market to purchase and use the recycled paint.

Many communities can meet these criteria. For example, King County's Household Hazardous Wastemobile will probably collect about 13,000 gallons of leftover latex in 1990 -- a ready supply if ever there was one. About 6,000 gallons of this could be recycled, a cost savings to the County. As demonstrated by Seattle's two pilot paint recycling projects, there are several local manufacturers with interest and the capability to reprocess King County's paint. And as discussed in the Marketing portion of this section, reliable public agency markets for the paint can likely be put in place -- King County and other local jurisdictions simply need to do so.

Nearby communities (like Seattle and King County) should pool together to operate combined paint recycling programs. It is especially important for smaller communities to combine programs since there are real economies of scale, and recycling small volumes can be prohibitively expensive.

Combining neighboring paint recycling programs also simplifies marketing efforts (there is only one recycled paint to sell and for consumers to get used to) and prevents neighboring recycling programs from competing against one another to sell the paint. Because the market for using recycled latex is not yet firmly established, the confusion generated by competing product lines would likely jeopardize the programs' success.

A combined Seattle and King County latex paint recycling program could be organized in a number of different ways. Each jurisdiction would be individually responsible for collecting, sorting and bulking the paint (with its own staff, in the case of Seattle, or as a contracted service, in the case of King County). Reprocessing and marketing could be organized along several different lines:

- Each jurisdiction could contract independently with the same paint manufacturer and marketer, using identical work scope language to create a uniform product and sales program;

- The jurisdictions could enter into an interlocal agreement assigning one of them lead responsibility for contracting for reprocessing and marketing on behalf of both of them. Issues of ownership of the paint, liability, revenues and payments would also be addressed in the agreement;

- Both jurisdictions could assign their paint and responsibility for managing the recycling program to a third entity, such as the King County Marketing Commission, or the Technical Committee of the Moderate Risk Waste Plan. Both jurisdictions would enter into an interlocal agreement or contract with the third entity.

By initiating a latex paint recycling program as an alternative to disposing the paint as a hazardous waste, a community promotes environmental protection and reduces its disposal costs. And by purchasing and using the inexpensive recycled paint that results, a community may also reduce its expenditures to purchase paint.

G. APPLICABILITY TO COMMERCIAL PAINT

This report has focused on recycling leftover latex paint collected from households. Yet householders are not the only generators. Businesses also use and dispose of latex paint.

In 1989, the Local Hazardous Waste Management Plan for Seattle-King County estimated that small quantity commercial generators (SQGs) in Seattle and King County generated about 12,700 tons of hazardous waste, 2% (about 46,700 gallons) of which was latex paint.

This is a lot of leftover latex paint. A program to recycle commercially-generated leftover latex could match or surpass the size of a household paint recycling program. Here too, the benefits would be both environmental and economic.

TABLE 1-3.6 highlights several issues which must be resolved before a commercial paint recycling program can be established.

TABLE 1-3.6
COMMERCIAL PAINT RECYCLING ISSUES

- How would leftover commercial paint be collected and sorted?
- Do sites where the paint is collected and reprocessed need to be permitted as hazardous waste TSDs?
- Can a market be established to purchase and use the recycled commercial paint?

The first issue is significant, since Seattle and most local governments do not collect commercially generated hazardous wastes. Leftover commercial latex could be collected through existing hazardous waste management companies, through paint retailers, or by several other means. Setting up this "reverse distribution" network, and establishing a way for it to pay for itself is a task which has yet to be accomplished.

The collection facility could not accept any paints which might be considered hazardous from a regulated commercial generator. In that case, the collection facility would have to be permitted as a hazardous waste Storage Facility.

Because the majority of latex paint is non-hazardous, this situation can be avoided by sorting the paint as it is collected, and immediately returning to the generator any paint which appears to be hazardous.

The third issue, establishing a market for recycled commercial paint, could probably be met by requiring painting contractors to purchase as much paint as they turn in for recycling.

H. NEXT STEPS

To initiate a latex paint recycling program, two tasks should first be accomplished. These are outlined below:

- Examine available literature on the potential health risks posed by residual levels of mercuric biocides in recycled interior latex paint (less than 200 PPM); and

- Line up recycled paint procurement with the City of Seattle and other public agencies.

Once these steps are in place, the City can move forward to establish a contract with a paint manufacturer to reprocess the paint according to the specifications outlined in this report in TABLE 1-3.4; train staff at the City's two Collection Sheds; and begin sorting and reprocessing latex paint in 1991.

SEATTLE PAINT RECYCLING & DISPOSAL PROJECT
LATEX PAINT RECYCLING

CONCLUSION

In conclusion, Seattle's pilot paint recycling project has been a distinct success.

The project has demonstrated that a good quality 100% recycled latex paint can be produced which is remarkably consistent between batches. Seattle is the first community in the country to achieve this result.

A pilot marketing effort and subsequent research shows that public agencies could easily consume all the recycled latex which the City may produce -- it is simply necessary to put the proper procurement system in place. Recycled latex also shows potential as a primer and paint extender for professional painting contractors, and as an inexpensive, environmentally enhancing, paint for individual homeowners.

Moreover, a paint recycling program can cut current latex disposal costs by as much as 60%.

It remains necessary to confirm that the paint's mercury content does not pose a health risk, and to line up procurement guarantees with public agencies.

On this basis, it is recommended that the City of Seattle work to initiate a permanent latex paint recycling program in 1991. In doing so, the City will reduce its reliance on hazardous waste landfills, and promote recycling, while reducing its household hazardous waste management costs.

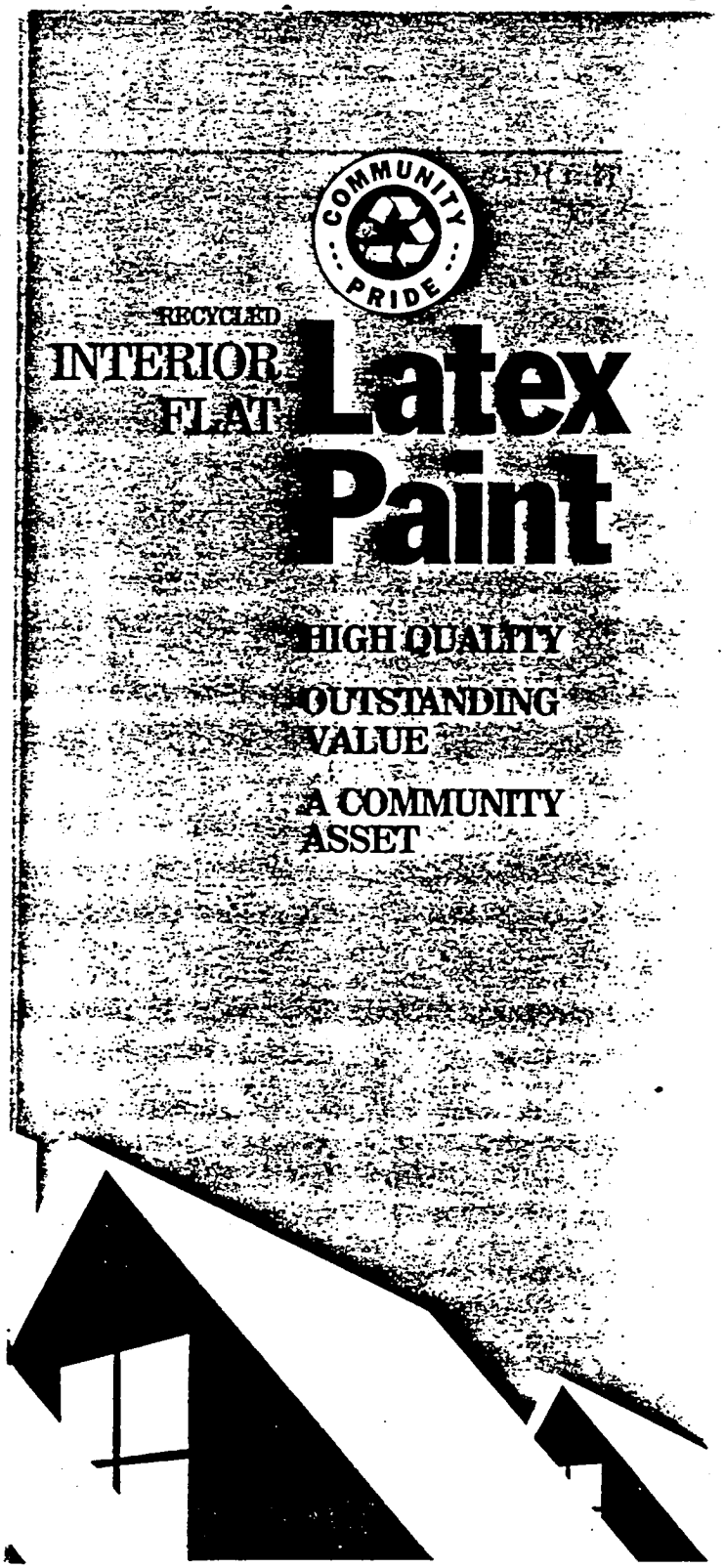
SEATTLE PAINT RECYCLING & DISPOSAL PROJECT
LATEX PAINT RECYCLING

EXHIBITS

- **Paint Label**
- **Paint Brochure**
- **Direct Mail Piece**
- **Articles**
- **Survey Forms**

SEATTLE
BEIGE
TINT BASE

1 U.S. GAL – 3.785 LITERS


COMMUNITY
PRIDE
RECYCLED
INTERIOR
FLAT
Latex
Paint
HIGH QUALITY
OUTSTANDING
VALUE
A COMMUNITY
ASSET

Dear Painting Contractor,

"Community Pride" brand Recycled Latex Paint is now on sale at 19 paint stores in the greater Seattle area. It is manufactured for Seattle's Solid Waste Utility, and is being sold through retail outlets by Daly's Paint, Daniel Boone Paint, Jarvie Paint, Parker Paints and Preservative Paint.

A paint brochure is enclosed. I encourage you to give it a try.

Community Pride is an interior flat latex. It has superior stain resistance, adhesion and hiding. It is excellent for residential office and warehouse applications -- as a final coat or as a primer. The paint sells for $5/gallon ($4.50/gal for 100 gallons or more).

Community Pride is made from leftover latex paint which the public has turned in through household hazardous waste collection programs. Extensive sorting and testing are done to reprocess the paint. The Puget Sound Paint & Coatings Association has been working closely with the City to make sure that Community Pride is of high quality. It meets all federal, industry and ASTM standards for a flat interior latex.

The paint's base color is a pastel beige. The paint can be custom tinted at the store. Sample colors include peacock blue, coral pink and tamarack, among others. Community Pride comes in five and one-gallon containers. It is intended for conventional and airless spray and roller application -- without dilution.

Community Pride will be available through the end of April.

The Puget Sound Paint & Coatings Association encourages you to try Community Pride Recycled Latex Paint. It is a good paint at a great price -- and it promotes recycling and protects the environment.

Sincerely,

Bob Eaton

BOB EATON
President

SECTION E
Monday, February 5, 1990
The Seattle Times

An idea that should stick: recycled paint

by Hill Williams
Times science reporter

Remember the unused latex paint you dropped off at a hazardous-waste collection site last summer? In a project that has attracted national attention, your old paint has been recycled and is now for sale.

The project, a first in the United States, converted old latex paint, once considered a hazardous waste, into a useful product. Instead of paying to get rid of it, Seattle is selling it for $5 a gallon.

If the paint sells well, the city's solid-waste utility hopes to continue the project, which is projected to yield net benefits of $1 million in 20 years. That would include savings to the city in disposal costs and profits to the paint industry, which processes and markets the paint.

Philip Morley, a Seattle consultant who proposed the idea, estimates the yield would jump to $3 million over 20 years if King County joined the city project.

The city and the state Department of Ecology provided money for the project. Metro contributed laboratory services that showed the recycled paint met federal standards for contaminants. The Puget Sound Paint and Coatings Association, an arm of the paint industry, cooperated in processing and preparing the paint for marketing.

The paint, with a brand name of "Community Pride," is available in both 1- and 5-gallon containers. Chris Luboff, project manager for the city's solid-waste utility, said the paint will be sold through the end of April at 19 Seattle-area paint stores operated by Daly's Paint, Daniel Boone Paint, Jarvie Paint, Parker Paints and Preservative Paint.

"If sales meet expectations," Luboff said, "the city hopes to continue recycling latex paint on an ongoing basis."

Community Pride is an interior flat latex suitable for use by both professionals and paint-it-yourselfers. Morley said testing has shown the recycled paint has superior qualities for resisting stains, sticking to walls and hiding previous paint coatings.

Paint and paint-related products make up 84 percent of household hazardous waste received at the city's south transfer station. In the recycling process, oil-based paint is separated and treated as hazardous waste as before. Cans of latex, or water-based, paint are inspected individually. Paint that has hardened or spoiled is rejected.

Another cost-saving bonus came when Metro's lab work revealed that even the rejected latex could be treated as nonhazardous waste and discarded through usual channels.

When the reclaimed latex is poured together and mixed in large quantities, the resulting color is beige, which project workers have named "Seattle beige." It's a popular color for both home and offices. Seattle beige can also be tinted to customers' specifications at the paint stores.

The OVERSPRAY • ISSUE XI • FEBRUARY 1990 •

Parker Paint Teams With Community Pride

Community Pride brand paint is now available through five Parker Paint locations. This pilot project sponsored by the City of Seattle is the first of its kind in the United States. *Community Pride* paint was inspired by the necessity to dispose of household hazardous waste products. *Community Pride* is a 100% recycled flat interior latex paint made from old latex paint which the public turns in through household hazardous waste collection programs.

This pilot program has received national attention for its state-of-the-art paint recycling process which turns a paint disposal problem into a marketable product. The project is being conducted for the City of Seattle by Morley & Associates. Philip Morley, project consultant, explains that through a sorting process at the collection site there is the ability to make a product that meets Federal and Industry paint standards for interior flat latex paint.

Community Pride has been field tested and was used by the King County Housing Authority, Seattle City Light and the Department of Ecology in Olympia. Although geared toward the painting contractor, it is available to the public. The base color of this product is Seattle Beige which can be tinted at the store level to Slate, Light Olive, Peacock Blue, Pink Coral, Tamarack and Mocha Cream.

Chris Luboff, project manager, reports that the paint will be available through the end of February. If sales meet expectations, she said the City hopes to continue recycling latex on an on-going basis.

Three thousand gallons (1100 of which are available through Parker Paint) were recycled and are available during this pilot project. "The ultimate goal," says Morley, is for *Community Pride* to become a permanent on-going program not only in Seattle but in other areas where the local governments can set up and staff household hazardous waste collection sites."

The potential gallonage available for recycling is about 10,000 gallons this year increasing to 20,000 in 1991 and as much as 70,000 by the year 2000 in King County alone. Currently the recyclable products are from households only. But, as Morley states, should this project prove to be successful it could be a much needed avenue for the commercial painters to dispose of their excess latex paint.

Available in five and one gallon containers, *Community Pride* is selling for $5.00 per gallon.

TECHNICAL INFORMATION

Product Description: A flat interior latex paint with superior stain resistance, adhesion and hiding. It has good one-coat coverage.

Suggested Application: Best for interior walls and ceilings, all surfaces.

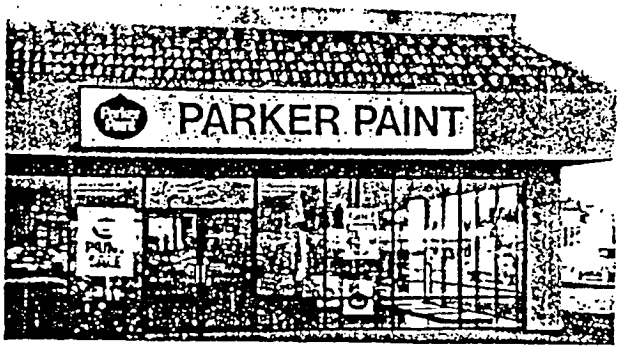
Surface Preparation: Surface must be clean, dry and free from dust and oil. Glossy surfaces must be sanded until dull. Fill all cracks and patch as required. New plaster or wood should be primed. Metal surfaces must have metal primer applied before using latex.

Application: Intended for airless and conventional spray and 3/4 inch nap roller. Not recommended for exterior use or surfaces with high exposure to soiling. Once dry, Community Pride recycled latex paint can be washed gently with water and detergent.

Volume Solids: 30 - 40%

Coverage: Approximately 250 square feet per gallon.

Drying Time: Set in 30 minutes. Hard in 2 hours. Recoat in 24 hours.



The Latest Edition

Parker Paint - Longview
909 Washington Way
Longview, WA 98632
578-0904

Bill Shaw - Manager

Paint Pilot Project

Mention "hazardous waste" to most people and it conjures up visions of barrels of vile chemicals. Few people consider the half-gallon of leftover paint sitting in the garage as hazardous waste.

But oil-base paints contain solvents and other hazardous chemicals, some old latex paints contain lead and mercury, and even relatively "clean" latex paint is a free liquid, which can be a problem in a landfill.

Almost 5,000 gallons of latex paint and 6,800 gallons of oil-base paint were collected from three sites in King County during the June 1989 Hazardous Waste Roundup and from Seattle's fixed collection facility.

Proper disposal of all that is expensive, but what else can be done?

How about using it as paint? Seattle is doing just that with a $50,000 grant from the Department of Ecology's Hazardous Waste Pilot Project program and additional money from the Urban Consortium.

Seattle will reprocess and market latex paint turned in at household hazardous waste collection events. The grant also pays for research into ways to recycle the solvents and pigments in oil-base paint and to dispose of unrecyclable latex and oil-base paint.

Recycling paint is an idea that appeals to many familiar with waste reduction and recycling efforts. "We're really excited because we realize paint is the single largest component of the substances collected at these events," said Cheryl Strange of Ecology's Waste Management Grants Section.

"If Seattle is successful in their effort to produce, package and market a recycled paint product, then we may be able to change the way we plan for and think of household hazardous waste collection."

Sally Toteff of Ecology's Hazardous Waste Information and Planning Section agrees. As the Department's coordinator for these pilot projects, she thinks the project can help other communities take waste management steps beyond collection.

After the paint is collected and sorted, it is "bulked" in 55 gallon barrels for shipment to the paint reprocessor, who will mix, strain and test it in batches, then tint the batches for color consistency. The resulting light tan paint is called "Seattle Beige."

"Son of Paint," as it's whimsically called, builds on a previous research project funded by Seattle which showed latex paint collected as household hazardous waste could be reprocessed into a usable product — a light-colored, low grade interior paint dubbed "Seattle Beige."

The new project expands into distributing and selling latex paint generated by the collection events. It will be marketed through a paint manufacturer at more than 20 wholesale outlets in the Puget Sound area. The city worked with the Puget Sound Paint and Coatings Association in developing the contacts needed for a successful project.

Chris Luboff is Seattle's coordinator for the paint recycling project. "The paint doesn't require much processing, just mixing and straining," Luboff said. "It's not a very expensive, fancy paint. It's what they call a contractor's grade." But at $5 per gallon the paint costs less than any other on the market. The marketing plan targets building contractors looking for an inexpensive paint that covers well.

Phillip Morley and Associates coordinated and researched both the original test run and this pilot project. They learned that the sorting process is the key step in obtaining a good quality product. Using frozen, soured or dark-colored paint produces an unmarketable product that doesn't mix well, smells bad, and is a muddy color. Letting paint with lead, mercury, or other contaminants slip by could result in liability problems.

Workers trained to identify usable and non-usable paint inspected the latex paint for the project as it was brought in, sorting it into three types:

- *Recyclable*—good quality, light-colored latex paint.
- *Non-recyclable*—frozen, dried out, dark colored paint.
- *Hazardous waste*—paint containing lead or other contaminants.

The sorting process yielded approximately 3,000 gallons of recyclable latex paint, 2,000 gallons that could not be recycled, and little hazardous waste. Luboff said the non-recyclable paint is being tested for toxicity and heavy metals or organic chemicals. If the paint proves to be safe for disposal, it will be solidified and placed in a regular landfill.

The good paint will be packaged in five- and one-gallon cans, labeled as "Community Pride" brand recycled interior flat latex paint, and distributed to select outlets.

Toteff says marketability is the key question. "We need to find out if there'll be enough demand for this type of product, today as well as five and ten years from now," she said.

Toteff sees the grant-funded paint recycling project as demonstrating Ecology's commitment to assist local governments with moderate risk waste management. She noted that we have built a "four-prong" approach for this commitment, combining planning, financial, education, and technical assistance.

The Hazardous Waste Pilot Project grant program is part of this financial assistance. It is funding projects in Seattle and Thurston County to expand fixed household hazardous waste collection facilities and in Island County to build a fixed facility. Island County will also try out an exchange program for household hazardous waste.

The Intergovernmental Resource Center in Vancouver is using a pilot project grant to help establish a small business assistance program, providing informational and educational services for small quantity generators so they can better manage and recycle the waste they produce.

The Hazardous Waste Pilot Project grant program was designed as a one-time use of $500,000 from the Local Toxics Control Account. Strange explained that future grants will come from a program designed to help local governments implement their hazardous waste plans.

"Local governments have voiced a need for more information-sharing from these projects. We are requiring specific reports from these pilot projects and we will be sharing the results," she said.

She added that local governments can help themselves in applying for the implementation grants by focusing on their planning process, developing a program of action in their hazardous waste plan that they intend to implement.

"In the future we're only going to be interested in funding projects that are recommended in the plans," Strange said.

Ecology also supports two hazardous (moderate risk) waste management hotlines:

Hazardous Substance Information Hotline, 1-800-633-7585 (for businesses that generate small quantities of hazardous waste).

Recycling Hotline, 1-800-RECYCLE, (for household hazardous waste).

This messy job is one of the most important in recycling paint—inspecting and sorting the paint collected to make sure only usable, light-colored paint is mixed as the basis for the recycled paint.

Waste Management Grants

Calendar - First Quarter 1990

January 23 Public hearing in Spokane on the proposed Remedial Action Grants rule, Chapter 173-322 WAC

January 25 Public hearing in Seattle on the proposed Remedial Action Grants rule, Chapter 173-322 WAC

February 28 Application deadline for Household Hazardous Waste Collection Events (for events to be held between July 1 and December 31, 1990)

Organization

When local governments need a grant to help set up curbside recycling, clean up a contaminated landfill, or plan for managing solid wastes they all send their applications to the same place—the Waste Management Grants Section of the Department of Ecology. We administer grants for three separate programs:

- Solid and Hazardous Waste Management.
- Hazardous Waste Investigations and Cleanup.
- Waste Reduction, Recycling and Litter Control.

The grants section functions as a stand-alone unit under the Waste Management Assistant Director.

We offer financial assistance for: Hazardous waste planning, zoning and implementation; Household hazardous waste collection events; Solid waste planning and enforcement; Groundwater monitoring wells; Citizen/proponent negotiations; Waste-to-energy facilities; Remedial action; Public participation; Waste reduction and recycling; Litter control and recycling; Vehicle tire recycling.

New grant programs will start soon for composting and public information and education in waste reduction and recycling. Watch for them in upcoming issues of *$ources.*

LATEX PAINT RECYCLING PILOT

QUESTIONNAIRE FOR USERS OF RECYCLED PAINT

PLEASE HAVE YOUR PAINT FOREMAN FILL OUT THIS QUESTIONNAIRE.

NAME OF ORGANIZATION: _____
ADDRESS _____
_____
_____

NAME OF PAINT FOREMAN: _____
TELEPHONE: _____
_____

METHOD OF APPLYING RECYCLED PAINT (circle): spray / roller / brush
NUMBER OF COATS: _____

HOW WELL DID THE PAINT COVER OR HIDE? _____
WAS THERE DIFFICULTY WITH BUBBLING, SPATTERING, ETC (specify): _____

WAS THERE DIFFICULTY WITH DRIPPING ON SURFACE OR APPLICATOR? (specify): _____

WAS THERE UNIFORM SHEEN OR FLATNESS? (describe): _____
WERE THERE ANY PARTICLES OR SKINS IN THE PAINT? (describe): _____
DESCRIBE PAINT'S DRYING TIME: _____
DID ITS ODOR DIFFER FROM OTHER LATEX PAINT? (how?): _____

PLEASE MAKE ANY OTHER EVALUATION OF THE PAINT: _____
_____
_____

TYPE OF STRUCTURE PAINTED WITH RECYCLED PAINT (circle one):
residential / commercial / industrial
WHAT DID YOU PAINT? _____
_____

IS THIS AN INTERIOR OR EXTERIOR SURFACE (circle one)?
WHICH SURFACES DID YOU PAINT (circle):
wall / ceiling / floor / trim
HOW MUCH AREA WAS PAINTED (in square feet)? _____
HOW MANY GALLONS OF RECYCLED PAINT DID YOU USE? _____

HOW DID YOU PREPARE THE SURFACE? (circle):
wiped
washed (how?) _____
scraped
sanded
spackled
primed (with what?) _____

WAS SURFACE PAINTED FOR THE FIRST TIME, OR REPAINTED? (please see reverse side)

RECYCLED PAINT QUESTIONNAIRE (continued)

FIRST TIME PAINTED:
TYPE OF SURFACE (circle): sheet rock / plaster / cement / wall paper / wood /
other (specify) _____

REPAINTED:
OLD COATING COLOR: _____
OLD COATING TYPE (circle): latex / solvent based paint / varnish / urethane /
other (specify) _____

OLD COATING SHEEN (circle): flat / semi-gloss / gloss

THANK YOU FOR FILLING OUT THIS QUESTIONNAIRE!

[IF YOU HAVE ANY QUESTIONS, PLEASE CALL PHILIP MORLEY, AT 324-5405.]

PLEASE USE THE ENCLOSED ENVELOPE AND RETURN QUESTIONNAIRE TO:

MORLEY & ASSOCIATES
SUITE 402, PIONEER BUILDING
600 - 1ST AVENUE
SEATTLE, WASHINGTON 98104

PHILIP MORLEY (206) 628-0657

STORE MANAGER SURVEY

RETAIL OUTLET _____ PHONE _____

CONTACT PERSON _____

DID YOU HAVE ANY FEEDBACK FROM USERS:

ANY COMPLAINTS (SPECIFY):

HOW WELL DID IT PERFORM:

COMMENTS ABOUT COLOR, ODOR, PRICE?

FEEDBACK ON SALES:

WHAT KIND OF CUSTOMERS WERE BUYING IT?

WHAT ARE PEOPLE USING IT FOR? (TYPES OF SPACE, USED AS SEALER (PVA), BLENDED WITH OTHER PAINT?)

WHY DID PEOPLE NOT BUY THE PAINT? (E.G. COLOR, PRICE, ETC)

WHY DID PEOPLE BUY THE PAINT? (E.G. PRICE, RECYCLING ETHIC, ETC.)

WHAT IS THE CHEAPEST-PRICED PAINT YOU CARRY THAT IT WAS COMPETING AGAINST?

FUTURE PROSPECTS:

WHO SHOULD WE BE SELLING TO IN FUTURE?

WHAT KINDS OF USES?

WHAT TYPE OF PRICE RANGE?

WHAT CAN WE DO TO IMPROVE SALES IN A FUTURE PROGRAM? (E.G. COLOR CHANGES -- would a few shades lighter make a difference, PRICE, SALES SPIFFS)

ATTACHMENT 2

Proposed Specifications for Reprocessed Paint

SPECIFICATIONS FOR RECYCLED LATEX PAINT:
INTERIOR LIGHT

TEST		ACCEPTABLE VALUES MIN	MAX
QUANTITATIVE			
1.	Total Solids (% by weight)	45.0	--
2.	Weight per Gallon (pounds)	10	12
3.	Consistency (Krebs units)	90	110
4.	Dry Opacity	0.95	--
5.	Reflectance (%)	75	--
6.	Gloss @ 85° (%)	3	10
7.	Fineness of Grind	3	--
8.	Sag (mils)	10	--
9.	Anchorage (inches)	--	1/16
10.	Flexibility, Mandrell (inches)	1/8	--
11.	Freeze Thaw Resistance (cycles)	3	--
12.	Scrub Resistance (cycles)	400	--
13.	Washability		
	a. Reflectance After Washing (%)	95	--
	b. Gloss @ 85° (%)	--	20
14.	Drying Time, hard (hours)	--	1
15.	Recoating Time (hours)	--	4
16.	pH	8	10
17.	Lead Content (%)	--	0.06
18.	Mercury Content (parts per million)	--	50
QUALITATIVE			
19.	Condition in Container	pass	--
20.	Working Properties	pass	--
21.	Bubbling	pass	--
22.	Appearance of Dried Paint	pass	--
23.	Fungus Resistance	pass	--
24.	Resistance to Water	pass	--
25.	Resistance to Alkalai	pass	--
26.	Odor	pass	--
27.	Storage Stability	pass	--
28.	Recoatability	pass	--
29.	Color match to Federal Color # 37778, or other acceptable color standard	pass	--

The testing shall be done in accordance with the latest ASTM test or the Federal Test Method Standard No. 1419 when applicable. The method for testing Bubbling is attached to this specification.

SPECIFICATIONS FOR RECYCLED LATEX PAINT:
EXTERIOR LIGHT

TEST		ACCEPTABLE VALUES MIN	MAX
QUANTITATIVE			
1.	Total Solids (% by weight)	50.0	--
2.	Weight per Gallon (pounds)	10	12
3.	Consistency (Krebs units)	90	105
4.	Dry Opacity	0.95	--
5.	Reflectance (%)	75	--
6.	Gloss @ 85° (%)	5	15
7.	Fineness of Grind	4	--
8.	Sag (mils)	10	--
9.	Anchorage (inches)	--	1/16
10.	Flexibility, Mandrell (inches)	1/8	--
11.	Freeze Thaw Resistance (cycles)	3	--
12.	Recoating Time (hours)	--	4
13.	pH	8	10
14.	Lead Content (%)	--	0.06
15.	Mercury Content (parts per million)	--	200
QUALITATIVE			
16.	Condition in Container	pass	--
17.	Working Properties	pass	--
18.	Bubbling	pass	--
19.	Appearance of Dried Paint	pass	--
20.	Fungus Resistance	pass	--
21.	Resistance to Water	pass	--
22.	Resistance to Alkalai	pass	--
23.	Odor	pass	--
24.	Storage Stability	pass	--
25.	Accelerated Weathering @ 500 hours	pass	--
26.	Recoatability	pass	--
27.	Color match to Federal Color # 37778, or other acceptable color standard	pass	--

The testing shall be done in accordance with the latest ASTM test or the Federal Test Method Standard No. 1419 when applicable. The method for testing Bubbling is attached to this specification. Accelerated Weathering should be conducted in parallel with a standard commercial paint for sake of comparison -- this paint shall be specified by Metro.

SPECIFICATIONS FOR RECYCLED LATEX PAINT:
EXTERIOR DARK

TEST		ACCEPTABLE VALUES MIN	MAX
QUANTITATIVE			
1.	Total Solids (% by weight)	50.0	--
2.	Weight per Gallon (pounds)	10	12
3.	Consistency (Krebs units)	90	105
4.	Dry Opacity	0.97	--
5.	Reflectance (%)	--	15
6.	Gloss @ 85° (%)	3	10
7.	Fineness of Grind	3	--
8.	Sag (mils)	10	--
9.	Anchorage (inches)	--	1/16
10.	Flexibility, Mandrell (inches)	1/8	--
11.	Freeze Thaw Resistance (cycles)	3	--
12.	Recoating Time (hours)	--	4
13.	pH	8	10
14.	Lead Content (%)	--	0.06
15.	Mercury Content (parts per million)	--	200
QUALITATIVE			
16.	Condition in Container	pass	--
17.	Working Properties	pass	--
18.	Bubbling	pass	--
19.	Appearance of Dried Paint	pass	--
20.	Fungus Resistance	pass	--
21.	Resistance to Water	pass	--
22.	Resistance to Alkalai	pass	--
23.	Odor	pass	--
24.	Storage Stability	pass	--
25.	Accelerated Weathering @ 500 hours	pass	--
26.	Recoatability	pass	--
27.	Color match to Federal Color # 30117 or other acceptable color standard	pass	--

The testing shall be done in accordance with the latest ASTM test or the Federal Test Method Standard No. 1419 when applicable. The method for testing Bubbling is attached to this specification. Accelerated Weathering should be conducted in parallel with a standard commercial paint for sake of comparison -- this paint shall be specified by Metro.

BUBBLE TEST
FOR APPLICATION-INDUCED BUBBLING

1. On a sealed Pen-O-Pac or Leneta chart, apply moderate wet coat of the sample paint (4-8 mils).

2. Shear by brushing with a 1-inch synthetic bristle brush (Purdy or equivalent).

3. Immediately after brushing, dab the surface of the wet paint with the bristle tips until bubbles are raised.

4. Allow to dry fifeteen minutes at room temperature and humidity.

5. Examine the surface for craters or pock marks caused by bubbles.

6. Visual evidence of defects caused by the failure of the bubbles to break and "flow out" constitutes failure of the test.

PUBLIC CONTRACT

THIS Contract is entered into between the METROPOLITAN SERVICE DISTRICT, a municipal corporation, whose address is 2000 S.W. First Avenue, Portland, Oregon 97201-5398, hereinafter referred to as "METRO," and _____, whose address is _____ _____ 97___, hereinafter referred to as the "CONTRACTOR."

THE PARTIES AGREE AS FOLLOWS:

ARTICLE I

SCOPE OF WORK

CONTRACTOR shall perform the work and/or deliver to METRO the goods described in the Scope of Work attached hereto as Attachment A. All services and goods shall be of good quality and, otherwise, in accordance with the Scope of Work.

ARTICLE II

TERM OF CONTRACT

The term of this Contract shall be for the period commencing _____, 19__ through and including _____, 19__.

ARTICLE III

CONTRACT SUM AND TERMS OF PAYMENT

METRO shall compensate the CONTRACTOR for work performed and/or goods supplied as described in Attachment B. Metro shall not be

responsible for payment of any materials, expenses or costs other than those which are specifically included in Attachment B.

ARTICLE IV

LIABILITY AND INDEMNITY

CONTRACTOR is an independent contractor and assumes full responsibility for the content of its work and performance of CONTRACTOR's labor, and assumes full responsibility for all liability for bodily injury or physical damage to person or property arising out of or related to this Contract, and shall indemnify and hold harmless METRO, its agents and employees, from any and all claims, demands, damages, actions, losses, and expenses, including attorney's fees, arising out of or in any way connected with its performance of this Contract. CONTRACTOR is solely responsible for paying CONTRACTOR's subcontractors. Nothing in this Contract shall create any contractual relationship between any subcontractor and METRO.

ARTICLE V

TERMINATION

METRO may terminate this Contract upon giving CONTRACTOR seven (7) days written notice. In the event of termination, CONTRACTOR shall be entitled to payment for work performed to the date of termination. METRO shall not be liable for indirect or consequential damages. Termination by METRO will not waive any claim or remedies it may have against CONTRACTOR.

ARTICLE VI

INSURANCE

CONTRACTOR shall maintain such insurance as will protect CONTRACTOR from claims under Workers' Compensation Acts and other employee benefits acts covering all of CONTRACTOR's employees engaged in performing the work under this Contract; and from claims for damages because of bodily injury, including death and damages to property, all with coverage limits satisfactory to METRO. Liability insurance shall have minimum coverage limits of at least the dollar amounts listed in ORS 30.270. Additional coverage may be required in the Scope of Work attached hereto. This insurance must cover CONTRACTOR's operations under this Contract, whether such operations be by CONTRACTOR or by any subcontractor or anyone directly or indirectly employed by either of them. CONTRACTOR shall immediately increase the amounts of liability insurance required to reflect any changes in Oregon Law so that the insurance provided shall cover, at a minimum, the maximum liability limits under the Oregon Tort Claims Act.

If required in the Scope of Work attached hereto, CONTRACTOR shall provide METRO with a certificate of insurance complying with this article and naming METRO as an insured within fifteen (15) days of execution of this Contract or twenty-four (24) hours before services under this Contract commence, whichever date is earlier.

CONTRACTOR shall not be required to provide the liability insurance described in this Article if an express exclusion relieving CONTRACTOR of this requirement is contained in the Scope of Work.

ARTICLE VII

PUBLIC CONTRACTS

All applicable provisions of ORS chapters 187 and 279, and all other terms and conditions necessary to be inserted into public contracts in the State of Oregon, are hereby incorporated as if such provision were a part of this Agreement, including, but not limited to, ORS 279.310 to 279.320. ORS Chapter 279 states, in part, that the Contractor, its subcontractors, if any, and all employers working under this agreement are subject employers under the Oregon Workers' Compensation Law and shall comply with ORS 656.017, which requires them to provide workers' compensation coverage to all their subject workers. Specifically, it is a condition of this contract that Contractor and all employers working under this Agreement are subject employers that will comply with ORS 656.017 as required by 1989 Oregon Laws chapter 684.

ARTICLE VIII

ATTORNEY'S FEES

In the event of any litigation concerning this Contract, the prevailing party shall be entitled to reasonable attorney's fees and court costs, including fees and costs on appeal to any appellate courts.

ARTICLE IX

QUALITY OF GOODS AND SERVICES

Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of the highest quality.

All workers and subcontractors shall be skilled in their trades. CONTRACTOR guarantees all work against defects in material or workmanship for a period of one (1) year from the date of acceptance or final payment by METRO, whichever is later. All guarantees and warranties of goods furnished to CONTRACTOR or subcontractors by any manufacturer or supplier shall be deemed to run to the benefit of METRO.

ARTICLE X

OWNERSHIP OF DOCUMENTS

All documents of any nature including, but not limited to, reports, drawings, works of art and photographs, produced by CONTRACTOR pursuant to this agreement are the property of METRO and it is agreed by the parties hereto that such documents are works made for hire. CONTRACTOR does hereby convey, transfer and grant to METRO all rights of reproduction and the copyright to all such documents.

ARTICLE XI

SUBCONTRACTORS; DISADVANTAGED BUSINESS PROGRAM

CONTRACTOR shall contact METRO prior to negotiating any subcontracts and CONTRACTOR shall obtain approval from METRO before entering into any subcontracts for the performance of any of the services and/or supply of any of the goods covered by this Contract.

METRO reserves the right to reasonably reject any subcontractor or supplier and no increase in the CONTRACTOR's compensation shall result thereby. All subcontracts related to this Contract shall include the

terms and conditions of this agreement. CONTRACTOR shall be fully responsible for all of its subcontractors as provided in Article IV.

If required in the Scope of Work, CONTRACTOR agrees to make a good faith effort, as that term is defined in METRO's Disadvantaged Business Program (Section 2.04.160 of the Metro Code) to reach the goals of subcontracting _____ percent of the contract amount to Disadvantaged Business Enterprise and _____ percent of the contract amount to Women-Owned Business Enterprise. METRO reserves the right, at all times during the period of this agreement, to monitor compliance with the terms of this paragraph and METRO's Disadvantaged Business Program.

ARTICLE XII

RIGHT TO WITHHOLD PAYMENTS

METRO shall have the right to withhold from payments due CONTRACTOR such sums as necessary, in METRO's sole opinion, to protect METRO against any loss, damage or claim which may result from CONTRACTOR's performance or failure to perform under this agreement or the failure of CONTRACTOR to make proper payment to any suppliers or subcontractors.

If a liquidated damages provision is contained in the Scope of Work and if CONTRACTOR has, in METRO's opinion, violated that provision, METRO shall have the right to withhold from payments due CONTRACTOR such sums as shall satisfy that provision. All sums withheld by METRO under this Article shall become the property of METRO and CONTRACTOR shall have no

right to such sums to the extent that CONTRACTOR has breached this Contract.

ARTICLE XIII

SAFETY

If services of any nature are to be performed pursuant to this agreement, CONTRACTOR shall take all necessary precautions for the safety of employees and others in the vicinity of the services being performed and shall comply with all applicable provisions of federal, state and local safety laws and building codes, including the acquisition of any required permits.

ARTICLE XIV

INTEGRATION OF CONTRACT DOCUMENTS

All of the provisions of any bidding documents including, but not limited to, the Advertisement for Bids, General and Special Instructions to Bidders, Proposal, Scope of Work, and Specifications which were utilized in conjunction with the bidding of this Contract are hereby expressly incorporated by reference.

Otherwise, this Contract represents the entire and integrated agreement between METRO and CONTRACTOR and supersedes all prior negotiations, representations or agreements, either written or oral. This Contract may be amended only by written instrument signed by both METRO and CONTRACTOR. The law of the state of Oregon shall govern the

construction and inter- pretation of this Contract.

ARTICLE XV

ASSIGNMENT

CONTRACTOR shall not assign any rights or obligations under or arising from this Contract without prior written consent from METRO.

_____ METROPOLITAN SERVICE DISTRICT

By:	By:
Title:	Title:
Date:	Date:

AMH:BL:
CONTRACT.FOR
4/29/91

ATTACHMENT 4

DBE/WBE Compliance and Utilization Forms

DISADVANTAGED BUSINESS PROGRAM COMPLIANCE FORM
(To be submitted with proposal)

Name of Metro
Project: Latex Paint Reprocessing

Name of Bidder: _____

Address: _____

Telephone: _____

In accordance with Metro's Disadvantaged Business Program, the above-named Bidder has accomplished the following:

____ 1. Has fully met the Contract goals and will subcontract _____ percent of the Contract amount to DBEs and _____ percent to WBEs.

____ 2. Has partially met the Contract goals and will subcontract _____ percent of the Contract amount to DBEs and _____ percent to WBEs. The Contractor has made good faith efforts prior to proposal submission date to meet the full goals and will submit documentation of the same to Metro within two working days of proposal submission date.

____ 3. Will not subcontract any of the contract amount to DBEs or WBEs but has made good faith efforts prior to proposal submission date to meet the contract goals and will submit documentation of such good faith efforts to Metro within two working days of proposal submission date.

____ 4. Will not subcontract any of the contract amount.

_____

Authorized Signature Date

DISADVANTAGED BUSINESS ENTERPRISE UTILIZATION FORM

1. Name of Metro Project Latex Paint Reprocessing

2. Name of Bidder _____

   Address of Bidder _____

3. The above-named bidder intends to subcontract _____ percent of the Total Bid Price to the following Disadvantaged Business Enterprises (DBEs):

Names, Contact Persons, Addresses and Telephone Numbers of DBE Firms Bidder Anticipates Utilizing	Nature of Participation	Dollar Value of Participation

Total_____

Amount of Total Bid Price_____

DBE Percent of Total Bid Price_____

_____

Authorized Signature

Date: _____

WOMEN-OWNED BUSINESS ENTERPRISES UTILIZATION FORM

1. Name of Metro Project Latex Paint Reprocessing

2. Name of Bidder _____

   Address of Bidder _____

3. The above-named Bidder intends to subcontract _____ percent of the Total Bid Price to the following Women-Owned Business Enterprises (WBEs):

Names, Contact Persons, Addresses and Telephone Numbers of WBE Firms Bidder Anticipates Utilizing	Nature of Participation	Dollar Value of Participation

Total_____

Amount of Total Bid Price_____

WBE Percent of Total Bid Price_____

_____

Authorized Signature

Date: _____

ATTACHMENT 5

Metro Code Section 2.04 Covering DBE/WBE Requirements