



SUMMARY REPORT

AUTOMOTIVE "SHOP SWEEP" CAMPAIGN

**Hazardous Waste and Toxics Reduction Program
Olympia, Washington**

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Reduce Waste, Please Recycle

SUMMARY REPORT

AUTOMOTIVE "SHOP SWEEP" CAMPAIGN

Produced By:

**Washington State Department of Ecology
Hazardous Waste and Toxics Reduction Program
Olympia, Washington**

January 1994

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PREFACE

This report is a summary of the historical perspective, data findings, and initial conclusions and recommendations of Ecology's automotive shop sweep campaign. It is designed to be a reference tool for Ecology staff, local governments, other state governments and interested businesses and citizens.

Some campaign follow-up projects are ongoing; when completed, their results will be reported in a brief attachment to this summary report.

INTRODUCTION

"Shop sweeps", short assistance visits made to over 1,700 automotive repair shops in Washington state, were the heart of an innovative targeted-industry effort by the Washington State Department of Ecology's Solid and Hazardous Waste Program and Waste Reduction, Recycling and Litter Control Program.

This report describes the implementation procedures and findings for Ecology's automotive shop sweep campaign. The campaign has several unique attributes that make it a model for future regulatory compliance strategies and waste reduction education, including:

- 1. Consensus and cooperative based approach.** Including the regulated community throughout the development of the campaign lead to a more realistic, practical program with a much higher chance for success.
- 2. Positive incentives and technical assistance used to maximize environmental goals.** Technical outreach is a more appropriate approach to address small businesses (commercial as opposed to industrial) who often possess the same limited knowledge of the problems, regulations, and solutions as the general public, yet lack the resources (e.g., time, staff, consultants) to help themselves come into compliance.
- 3. Emphasis on on-site visits instead of relying on work shops, brochures, or other media.** The visits allowed Ecology and local government field staff to talk with, not at the regulated community. One-on-one discussions provided specific answers to specific problems.
- 4. "Visits" instead of inspections.** On-site visits were conducted with education and technical assistance in mind before regulatory enforcement. In this non-threatening, cooperative atmosphere, businesses were more forthright in identifying and discussing their problems, and more receptive to solutions offered.
- 5. Visits were streamlined to allow greater coverage.** Average inspection time for a conventional hazardous waste inspection, including preparation and follow-up time, averages close to 60 hours. Shop sweeps, incorporating a short checklist and pre-made educational materials, cut visits to an average of 45 minutes on-site, allowing a greater number of businesses to be visited.
- 6. Training/coordination opportunities highlighted between state and local governments.** Interaction between the Department of Ecology and local government hazardous waste programs helped both groups learn how to best exchange information about small quantity generators (local government responsibility) and regulated generators (state responsibility), and provided a training ground for many newer local government field staff.

PROGRAM GOAL AND APPROACH

The goal of the shop sweep campaign was to improve the quality of human health and the environment by:

- helping the Department of Ecology and local governments understand the complexities involved in the day-to-day management of automotive hazardous wastes;
- helping the automotive repair industry better understand and voluntarily comply with hazardous waste requirements; and
- promoting waste reduction and recycling as a compliance and environmental quality tool.

The automotive repair industry was selected as the pilot industry for the campaign for a number of reasons:

- the sheer number of automotive repair businesses and operations in Washington state (at least 10,000);
- the number of potential hazardous wastes (around 30); and
- the volume of hazardous wastes generated annually statewide (numbers below based on tabulated shop sweeps data and conservative estimates of automotive repair businesses statewide):
 - 1.2 million gallons of used antifreeze,
 - one million used fuel filters,
 - 35 tons of used lead solder,
 - 4,000 55-gallon drums of used paint thinners and solvents,
 - 1.3 million aerosol spray cans used for lubrication and degreasing.

What made this approach unique? On one hand, nothing really. Most of the work that hazardous waste inspectors do on a regular basis in Washington, even during conventional compliance inspections, is to provide technical assistance and advice to help businesses solve their hazardous waste management problems. Helping hazardous waste generators has been, and will continue to be, a top priority for hazardous waste inspectors.

On the other hand, however, the design and implementation of the shop sweeps campaign was different. Ecology began by approaching key automotive trade associations with the idea of providing fair, efficient service in exchange for increased compliance and cooperation from the industry. The end result was a partnership that resulted in numerous on-site visits that were short, basic, and to-the-point, and the dissemination of easy-to-read educational materials designed specifically for a variety of auto shop specialties.

The approach streamlined the conventional hazardous waste inspection to allow a greater number of on-site visits in a non-threatening atmosphere. This was accomplished through development of a short inspection checklist that included only the essential elements of the hazardous waste requirements, as well as pre-made education packets that were left with each shop. Ecology concentrated on the more common waste management problems (that probably represent 90 percent of overall management concerns), while sacrificing the remaining 10 percent of the time-consuming and difficult waste management problems for later consideration. Because visits were short, more businesses were able to be visited -- a start at creating a fairer, more level playing field for the automotive repair industry.

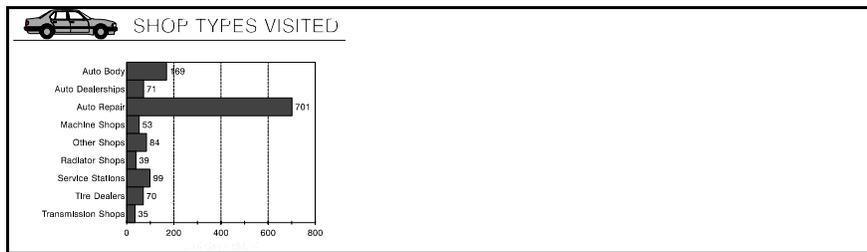


Figure 1 Number of statewide shop sweeps performed, by business type.

Team Approach

The shop sweeps campaign was a combined effort of the Department of Ecology, automotive associations and businesses, and local governments in Washington state. Associations and individual business helped supply valuable input on the subtle ins-and-outs of the repair industry and the day-to-day realities of trying to run a legitimate businesses. These industry representatives also helped create and finance the educational booklets that were handed out, and advertised the shop sweep visits through their association newsletters. Many county and city governments around the state, as part of their small quantity generator hazardous waste programs, joined in the sweep effort. Such interaction between the Department of Ecology and local governments helped both groups learn how to better exchange information about their respective waste programs.

Shops Visited

The shop sweep campaign began in January 1992 and directly educated over 1,700 shops by way of personal on-site visits (see Figure 1, above). Most of these visits occurred during a three month period in Fall 1992, with an additional round of over 300 sweeps occurring in the Spokane area during Summer 1993. The Metro/King County hazardous waste program alone visited over 300 auto repair shops. Thousands more received coinciding education via direct mailing, press

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releases, automotive association newsletters, word-of-mouth, and other media. Follow-up efforts continue as of January 1994.

WORKPLAN ELEMENTS: SUMMARY OF CAMPAIGN STEPS

Below is a discussion of the major workplan elements which made up the shop sweep campaign. It is intended to provide readers with a step-by-step snapshot of the basic framework of the campaign, along with some key considerations within each element. Other state and local governments may find it useful as a general recipe for undertaking a similar project.

- 1. Receive initial staff input and management support.** Does the idea have merit? Does it have support from both the grassroots and management level within your agency? Such support is critical up front in order to ensure success.
- 2. Approach industry associations and form a workgroup.** If the goal is to truly understand the regulatory and waste reduction concerns of an industry, a working group of key players within the industry must be formed. The shop sweeps campaign created a core working team of Ecology staff and nine key automotive associations within the state. This core group worked together with other interested parties to accomplish project goals.

Ecology intentionally created a core workgroup of the two main participants (Ecology and the automotive repair industry) in order to streamline decision-making. Other interested parties, such as local government, participated as needed during the campaign. This approach resulted in quick decisions and results but caused some concern among other interested parties that they weren't fully included in the process/project.

- 3. Define the range of businesses to be targeted.** When targeting an entire industry it is likely that the number of businesses will greatly outnumber the agency staff time available to address all their needs. To minimize this, it is important to limit the range of businesses to those deemed most important. For the shop sweeps campaign, we decided to concentrate on the following areas within the general automotive repair industry: auto body, auto dealerships, auto repair, machine shops, radiator shops, service stations, tire dealers, and transmission shops.
- 4. Compile site location and mailing lists for target businesses.** Once subcategories within an industry have been decided, compiling site location and mailing lists of these businesses is crucial. The shop sweeps utilized a "non-notifier" location list provided by EPA's National Enforcement Investigations Center in Denver, Colorado. The data contained in the list of potential RCRA non-notifiers was generated by a comparison of the Duns Market Identifiers and the Resource Conservation Recovery Information System. This list served as a good starting point for locating shops for visits, but it was not very accurate. Other methods for locating businesses includes telephone books yellow pages, association lists, vendor lists, mailing list services, and other lists already developed by other governments agencies (such as local governments, Department of Revenue, etc.).

5. **Answer the question "What is preventing this industry from complying with the regulations and reducing/recycling their wastes?"** Convene workgroup and conduct research within the industry to determine:

- regulatory barriers to waste reduction and recycling,
- waste/pollution problems,
- practical pollution prevention options,
- technical assistance needs, and
- industry motivations.

Don't be limited by traditional regulatory constraints, such as mandated federal requirements, if these constraints prohibit reasonable or common-sense solutions. Bypass such constraints through alternative routes such as pilot or demonstration projects.

6. **Build in evaluation steps to measure campaign success.** Ecology conducted informal interviews with staff, businesses, and local government following the shop sweeps. According to Ecology staff, some of the best aspects of the campaign were increased personal contact with businesses, the fact that generators liked the educational shop sweeps approach, and that the shop sweeps fostered a sense of community because of their widespread nature. Formal evaluation findings will be reported in a brief attachment to the *Summary Report* upon completion of the follow-up phase. In addition, formal follow-up letters and re-visits to a random sample of previously visited shops are planned (see #13 below).
7. **Work with the media to foster a positive response to the campaign.** Using press releases, articles in automotive association newsletters, word of mouth through key industry representatives, and other media, a positive atmosphere was created in which to conduct the campaign. This was crucial in light of the regulatory overtones of the campaign and the natural reluctance and fear of businesses toward hazardous waste regulations and environmental matters. Many shops expected to receive a visit or at least knew the basic goals of the campaign.
8. **Establish links with local governments in Washington state.** Ecology delegates responsibility for small quantity generators to local governments in the state while Ecology staff focus on medium to large quantity generators. Interaction between Ecology and local governments during the shop sweeps campaign helped both groups learn how to better exchange information about generators within their respective programs and provided a training ground for many newer local government field staff.
9. **Create on-site checklist and business-specific educational materials.** Two key education tools were used during the on-site visits: a two-page checklist and a packet of written materials. Checklists and booklets were developed with help from Ecology, local government staff, and automotive associations and business. The success of the booklets

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rests largely with the effort of the automotive repair industry, which allowed Ecology unlimited access to their shop practices so that we could gather firsthand knowledge, useful insights, and learn the language and realities of what goes on in a typical repair shop.

The checklist was designed to collect data from a statewide sample of repair shops on the types, amounts and ultimate management of wastestreams (see attachment A for a sample checklist) while the packets included specially-designed booklets for various repair specialties, a "Top 10 tips to hazardous waste success", and other appropriate written materials. Multiple copies of each checklist were created. The following entities each received a copy:

- the business being visited,
- Ecology's headquarters staff (for entry into the database),
- the appropriate Ecology regional office, and
- the local government small quantity generator program appropriate to the business location.

- 10. Enter information gathered from shop sweep visits into a database.** After the sweeps were completed, the data collected from the checklists was entered into a database at Ecology headquarters in Lacey, Washington. The goal of the database is to provide a tool for ongoing use by Ecology staff, local governments, businesses and the general public.

Database queries may be requested by contacting Darin Rice of Ecology's Hazardous Waste & Toxics Reduction Program at (206) 407-6743. For a description of query categories and samples, see page 17.

Database development includes tradeoffs between easy field use of the data collection tool (the checklist) versus easy data entry. Although the shop sweeps checklist was easy to use in the field, the hours required for data entry were greatly underestimated. Future targeted industry projects should consider developing a field checklist that allows for a more automated approach to data entry, such as "fill in the bubble" answers that can be computer scanned.

- 11. Perform shop sweep visits.** The essence of the shop sweeps was to say: "Your shop generates hazardous wastes. This is what they are and what you're doing right and wrong with them. Here's how to fix what you're doing wrong. Take this booklet and information packet as a reference tool. We may be back to check on your progress."

Perhaps the most important aspect of the shop sweep visits was their ability to help establish a widescale compliance education presence through large numbers of personal on-site visits, allowing shops to ask questions and receive answers from the regulators themselves. Shops were left with a "to do" list of items that would improve their waste management, recycling and reduction. Providing compliance information in an education

format provided a nice combination of motivation and comfort for shops.

Despite the large number completed, shop sweeps did not require additional Ecology staff. Instead, Ecology field staff resources were redirected during this time period to accommodate the sweeps, with inspectors from both Ecology and local government averaging over 20 visits per day for three months.

12. **Anticipate increased workload.** Systematically contacting large numbers of businesses creates a potential for increased staff workloads in terms of more phone calls, requests for documents, more hazardous waste generators requesting a state EPA I.D. numbers and entering the state hazardous waste management system. While such workload increases are difficult to trace back to a particular source, it does not appear that any substantial increase in staff workload occurred as a direct result of the shop sweeps, short of performing the shop sweeps themselves.

13. **Determine campaign effectiveness and long-term follow-up needs for the industry.** Evaluation is being done on both a formal and informal basis. Ecology staff have evaluated the campaign, as have some participating local governments. Some questions asked of staff include:
 - What was the best aspect of the auto campaign?
 - What was the worst aspect of the auto campaign?
 - If you could change one thing about the overall campaign, what would it be?
 - Should we do a similar single-industry campaign again? What industry would be most appropriate?
 - If you could pursue only one automotive follow up item, what would it be?

Summarized results of this informal staff survey are found in the Conclusions and Recommendations section beginning on page 19.

In addition, campaign effectiveness is being evaluated through several ongoing follow-up efforts. These include:

- **Results Article and Letter.** A summary article to appear in major automotive association newsletters, advising shops of problem areas that inspectors will focus on during any future visits. A similar letter will be sent to shops that received visits, thanking them for their participation.

- **Follow-up Shop Survey.** A phone survey to shops in the Spokane area will assess their view of the effectiveness of the shop sweep approach.

- **Evaluation Re-visits.** Ecology's hazardous waste field staff will revisit five percent of previously visited shops to evaluate compliance aspects of the sweep visits (i.e. the "to

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do" lists), and ask shop owners a small set of questions about the effectiveness of the shop sweep approach.

- **Enforcement Follow-up to Significant Problems.** Ecology's hazardous waste field staff will perform a limited number of enforcement follow-ups to shops with established poor waste management records that have not taken steps to correct their waste management problems. Enforcement follow-up was an item agreed to by the auto repair industry. This was viewed as a way to help minimize the competitive advantage gained by shops that don't pay the costs of proper waste management.
- **Floor Drain Strategy/Agreement.** As a result of the shop sweep findings, Ecology will devise a cross-program strategy or agreement in response to floor drains found in repair shops. Of particular concern are drains that are not connected to a sanitary sewer, such as dry wells, storm drains and septic system drains. These may be the source of historical improper disposal of hazardous waste.

Ecology's Hazardous Waste and Toxics Reduction program will meet with representatives of Ecology's Toxics Cleanup and Water Quality programs to develop an agency approach to dealing with these floor drains in a way that makes common sense for our programs and affected businesses. The answer probably lies in developing a set of best management practices that shops can follow to assess the degree of current contamination, take reasonable steps to clean up contaminated areas, and stop any future damage by closing off the drain.

- **Waste Testing.** Some waste streams that have not had clear cut regulatory answers will be sampled, tested and best management practices developed for management of these wastes. Candidate waste streams include used brake fluid, used fuel filters and used propylene glycol-based antifreeze.
- **Antifreeze Pilot Project.** Ecology has developed a pilot program which allows generators who recycle used antifreeze and follow specified best management practices to discontinue "counting" used antifreeze toward their monthly hazardous waste totals. The success of the pilot program will be reviewed in the fall of 1994.
- **Ongoing Ecology Workgroup.** Ecology has a working committee comprised of its various programs (air, water quality, hazardous waste & toxics reduction, and toxics cleanup) to address ongoing automotive issues, provide cross-program communication, and work on high priority projects, such as a multi-media update of the automotive repair booklets distributed during the shop sweeps.

SHOP SWEEP FINDINGS

Information collected during shop sweep visits can be segregated into four main areas:

- First, shop sweep visits provided the state's first systematic, in-depth look at the types and amounts of wastes generated, and how the wastes are disposed of or managed.

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- Second, the sweeps collected general information on a variety of compliance-related topics as well as other topics, such as floor drain information and whether or not a shop was a member of an automotive association.

- Third, the sweeps provided shops with a list of waste management deficiencies discovered, in a "to do" list format. The shop, Ecology, and the appropriate local government each retained copies of the "to do" list as a record of what an inspector would look for upon a future inspection.

- Fourth, Ecology inspectors informally ranked shops visited on a simple 1 to 3 scale, with 1's representing good hazardous waste management, 2's average waste management and 3's bad waste management. Figure 2 tallies these rankings. These rankings can be used as a tool for prioritizing future inspections.



Figure 2 Break down of shop waste management ratings.

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The data collected does have its limitations -- it is not comparable to that gathered in a "scientific" survey. The data gathered was susceptible to subjective error from either the businesses reporting the information or the inspector recording it. However, despite any inaccuracies, the data represents by far the best picture to date on statewide management of various automotive wastestreams, and provides a written record of waste management steps shops need to take in order to increase compliance and/or waste reduction and recycling objectives.

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Findings by Shop Type

The table below provides a snapshot of the types and average monthly amounts of automotive wastes generated by the range of shop types visited during shop sweeps. For example, the table shows that 60% of auto dealerships in Washington generate used fuel filters, at an average rate of 26 filters per month. Reading down a column heading provides a total snapshot of all wastes generated by a particular shop type.

AVERAGE AMOUNT OF WASTE GENERATED PER MONTH STATEWIDE									
WASTES	AUTO BDY	AUTO DLR	AUTO RPR	MACH SHOP	OTHER SHOPS	RADR SHOP	SERVICE STATION	TIRE DLR	TRANS SHOP
Used Antifreeze ³	5	36	11	1	9	18	12	14	9
Batteries ¹	2	7	7	50	23	4	9	28	2
Brake Fluid ³		1	1	1	3	3	2	2	0.4
CFC's ⁴	3	15	10		8	3	8	11	2
Cabinet Washer Sludge ²		36	19	299					32
Cold Tank Solvent ³		8	7	9	12	0.4	6	5	2
Cutting Coolants Sludge ²				60					
Fuel Filters ¹		26	12		5	4	14	7	5
Glass Bead/Steel Shot Dust ²				10					
Hot Tank Solution ³			1	37		11			
¹ = Number ² = Pounds ³ = Gallons ⁴ = Cars Figures rounded to nearest whole numbers, except when such rounding would result in a zero.									

(Continued on next page)

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Used Lead Solder ²							24		
Masking Tape/Overspray Paper ²	17								
Other Wastes ²	19	8	46	62	37	3200	64	11	7
Oven/Tumbler Residue ²				7					
Paint Booth Filters ²	12		1						
Paint Wastes ²	64		21	5		6	10	80	
Parts Washer Solvent ³	5	23	10	13	9	5	9	8	14
Rinse/Pressure Rinse Water ³						168			
Rust Inhibitor ²									
Shop Towels ¹	267	557	386	326	322	166	334	524	514
Spray Cans ¹	3	31	13	12	7	3	9	14	25
Still Bottoms ²	20								
Sump Sludge ²	6	321	77	12	16	216	117	10	25
Test Tank Water ³						1121			
Thinners & Solvents ³	7	18							
Transmission Filters ¹		18	6		11	1	5	9	64
Transmission Fluid ³	3	34	12	5	24	5	11	14	188
Used Oil Filters ¹		111	75		207	3	91	85	10
Used Oil ³	8	183	110	20	294	16	121	142	191
Unknown/Unmarked Containers ³	56	73	56	16	1057	75	193	20	4

¹ = Number ² = Pounds ³ = Gallons ⁴ = Cars

Waste Disposition Findings

The table below provides a snapshot of the "final destination" of different types of automotive wastes for the overall shop sweep campaign. For example, the table shows that 24% of shops that generate used antifreeze claim to reuse it as a product rather than manage it as a waste. Due to space constraints, not all waste management practices encountered are listed; therefore percentages by waste stream may not add up to 100%.

WASTE MANAGEMENT PRACTICES BY WASTESTREAM (% STATEWIDE)												
WASTES	Unknown/ Undocumented	On-site or Closed Loop Recyc.	Garbage/ Dumpster	Offsite Recyc. or HW Disposal	Other Disposal	Reuse as Product	Stored On Site	Sewer	Other Drain	Burned On Site	Burned Off Site	Laundry
Used Antifreeze	21	11	1	28	3	24	6	3	1	<1		
Batteries												
Brake Fluid		<1										
CFC's	21	74		1	1	<1					<1	
Cabinet Washer Sludge	39		9	23	13	1	2	6	1	1		
Cold Tank Solvent	25		4	47	8	2	7			<1		
Cutting Coolants Sludge	24		6	36	6	6	11		11			
Fuel Filters	26		64	6	1	1	1				1	
Glass Bead/Steel Shot Dust	37		44	9	3	3	3					

WASTE MANAGEMENT PRACTICES BY WASTESTREAM (% STATEWIDE)

WASTES	Unknown/ Undocumented	On-site or Closed Loop Recyc.	Garbage/ Dumpster	Offsite Recyc. or HW Disposal	Other Disposal	Reuse as Product	Stored On Site	Sewer	Other Drain	Burned On Site	Burned Off Site	Laundry

(Continued on next page)

General Findings and Database Queries

There are literally hundreds of different questions or question combinations that can be asked of the database in the form of queries. While it is impractical to address such a large list of questions and answers in a summary report such as this, below are listed several categories of the different types of questions that can be answered from the database, with samples from each category included.

General Questions

- **What is the breakdown of businesses visited?** 169 auto body, 71 auto dealerships, 701 auto repair, 53 machine shops, 39 radiator shops, 99 service stations, 70 tire dealers, 35 transmission shops, and 84 other.
- **What was the average amount of time spent on-site during a shop visit?** 45 minutes.

- **What is the breakdown of generator types by size?** See Figure 3.

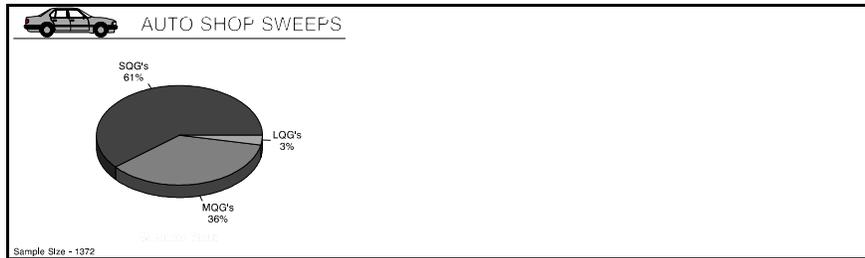


Figure 3 Break down of generator status by size, based on shop sweep sample.

- **How many shops use chlorinated aerosol sprays?** 32% of all shops use spray cans with chlorinated solvents, 35% don't use chlorinated sprays and 33% of shops have unknown use of chlorinated sprays.
- **How many shops that generate used oil filters claim to recycle them?** 17 percent.
- **What percent of shops claim membership with a trade association?** 32 percent total (highest is auto dealers (55%) and lowest is auto body (26%)).

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Statewide Waste Aggregates

Using shop sweep data and conservative estimates of statewide numbers of automotive repair businesses, approximate annual waste generation amounts for given wastes can be calculated from the database.

- **How many gallons of used antifreeze are generated annually in Washington?** 1.2 million.
- **How many used fuel filters?** One million.
- **How many tons of used lead solder in radiator shops?** 35.
- **How many 55-gallon drums of used paint thinners and solvents?** 4,000.
- **How many aerosol spray cans used for lubrication and degreasing?** 1.3 million.

Waste-specific Questions (for example, used antifreeze)

- **How many shops generate some amount of waste antifreeze?** 46 percent.
- **In shops that generate used antifreeze, what is the average amount generated per month?** 13 gallons.
- **In shops that generate used antifreeze, what is the average amount accumulated on site?** 41 gallons.
- **How is used antifreeze managed?** 5% used closed-loop recycling units, 6% do other on-site recycling, 28% recycle or dispose off-site, 24% claim reuse as product, 6% put it down a drain, on the ground or in the garbage, 2% add it to used oil, while 21% of management is unknown or undocumented.
- **What percent of shops generating used antifreeze claim to manage it as hazardous waste?** 44.
- **What percent of shops were medium or large quantity generators because of used antifreeze alone?** 33.

MAJOR MANAGEMENT CONCERNS IN SHOPS

Listed below are some of the biggest waste management problems found during the shop sweep visits. Ecology strongly encourages shops to address these key problems as found in their own shops, so that more shops are able to compete on a level playing field.

Major areas of concern include:

- **Disposal of wastes or wastewater to floor drains that don't lead to a sanitary sewer** -- shop owners need to first identify where their drains lead. They don't automatically go to a sanitary sewer or treatment plant. Second, if they find their drain is not connected to a sanitary sewer, they should take proper steps to close it off.
- **Unmarked containers of waste** -- these force an inspector to assume the content is hazardous. Unless the shop can show that it is not, this may result in testing and out-of-pocket costs to the shop owner.
- **Lack of hazardous waste records** -- such as manifest copies, receipts and bills of lading documenting past actions. Keep a file of such records.
- **Saturated shops towels** -- using shop towels as a disposal mechanism for liquid wastes such as used solvents and antifreeze is unacceptable. Use shop towels for their intended cleaning purpose only and wring out any excess liquid waste into the proper waste container.
- **Leaking or open containers** -- especially those exposed to weather and those near areas with stained or discolored soil indicating soil contamination problems. All containers should be structurally sound and kept closed except when waste is being added.
- **Sloppy housekeeping** -- Ecology discourages sloppy, unorganized storage of your wastes. Managers should designate one area in their shop to put all their wastes in. The area should not be exposed to weather and should contain spills. Empty barrels and containers should be recycled.
- **Not keeping separate containers for each waste** -- shops should keep separate containers for each waste stream. Label all waste containers in bold letters -- "USED OIL ONLY", "USED ANTIFREEZE ONLY", etc. and add the date when waste first enters the container. This will show that your shop is well organized, and will help train shop technicians about the importance of keeping different wastes separated.

INITIAL CONCLUSIONS & RECOMMENDATIONS

Based on input from Ecology and local government staff, the following initial conclusions and recommendations are offered. Additional conclusions and recommendations will be added upon completion of ongoing evaluation and follow-up efforts. Initial recommendations are presented as a series of brief bullets:

- Pollution prevention in combination with a regulatory approach is more effective than a pollution prevention approach alone;
- Based on the performance of the Spokane interns during the second round of shop sweeps, Ecology should strongly consider incorporating interns into the next targeted-industry campaign in each regional office. This is a potential win-win situation for both

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Ecology and the interns. Using the Senior Environmental Corp is another option.

- Need early notice, coordination and program planning with regional offices to avoid the feeling of drawing resources away from other regional projects.
- Need firmer ground rules for external workgroups that work in partnership with Ecology on these projects in order to assure fairness and efficiency.
- Don't underestimate the importance of and amount of time needed to create a checklist that is simple and easy to use in the field, yet allows for simple and easy data entry; make intent of checklist more clear to field staff.
- Make better use of service and equipment vendors and suppliers to help advertise or provide information to businesses during a campaign.
- Need greater level of involvement from and coordination with local governments, especially when targeting industries with a large percentage of small quantity generators. Early contact, even before a project begins, is important in order for local governments to plan resources.
- Supply regional offices with a "tool box" they can use to do a superior job, such as maps, a separate travel fund charging code, etc.
- Supply businesses with practical "hand outs" besides written education materials, such as pre-printed waste stream/container labels, vendor information, etc.
- Make sure we get the most out of other programs pledged support.
- Stretch out amount of time to conduct shop sweeps to avoid field staff "burn out".
- Provide better management answers to "pesky" waste streams like fuel filters and brake fluid.
- Offer more training to Ecology and local government staff.

WHAT'S NEXT

As suggested by Ecology hazardous waste field staff during follow-up evaluation, front running industries for a similar campaign were ranked as follows:

1. Dental Offices
2. Photo Labs
Electroplaters
Printers
3. Hazardous Waste Transporters
Labs
Hospitals
Dry Cleaners
Cabinet Makers

With money from an EPA Pollution Prevention Incentives for States grant, the targeted-industry approach will be refined and used again with hazardous waste generators in the printing and photofinishing industries, beginning in October 1993.

