SPILL DISCOVERED BY EMPLOYEE

(including contractor personnel, deliverers, etc.)

⇨ Employee

1. Determine the source of spill and stop it, if not already done and if possible.
2. Notify Site Manager (Steve Cohen). If during non-working hours, site manager shall be notified at home:

HOME PHONE NUMBER FOR STEVE COHEN

Non-responsive

3. Evaluate the magnitude of the spill and pollution potential. Call the Chicago Fire Department if a fire is involved:

CHICAGO FIRE DEPARTMENT

911

4. Direct the containment and clean up of the spill.
5. Call in additional assistance as required.

⇨ Site Manager

1. Notify city, federal and state authorities if required (see Section V). It must be reported immediately after it is discovered that a reportable quantity has spilled.

D. SPILL SUPPLIES

Emergency spill kits are located in the following areas:

- Ground level of main building

Spill kits shall contain the following:

- Bag of loose absorbent
- Dust suppressant/sweeping compound
- Portable vacuum
- Appropriate personal protective equipment and clothing
- Appropriate respiratory equipment

E. RESPONSE PROCEDURES

1. Minor Spill of Baghouse Dust: Isolate area, don appropriate personal protective equipment, clothing and respirator, apply dust suppressant/sweeping compound if necessary, manually sweep or use pavement sweeper or use portable vacuum, transfer into Gaylord box and store with other Gaylord boxes of baghouse dust.

2. Oil Spill: Contain flow of oil with absorbent, if necessary, spread loose absorbent on residue and scoop or sweep up with vacuum sweeper or stiff broom, transfer into steel 55-gallon drum.

3. Major Release of Baghouse Dust: Immediately shutdown process, notify National Response Center (see Section V) if dust has gone offsite, evacuate personnel from area(s) containing released material, apply dust suppressant/sweeping compound, manually sweep or use pavement sweeper or use portable vacuum, transfer into Gaylord box and store with other Gaylord boxes of baghouse dust.

4. Baghouse Fire: Immediately shutdown process and electrical supply to baghouse, call Chicago Fire Department at 911, evacuate personnel from vicinity of baghouse.

5. Spill of Non-Metallic Fluff Off of Separator Table: Isolate area, don appropriate personal protective equipment, clothing and respirator, manually sweep and pickup or use vacuum sweeper, transfer into an undamaged steel 55-gallon drum and store with other containers of non-metallic fluff off of separator table.

V. REPORTING RELEASES

The following agencies should be notified in the event of a release that exceeds the Reportable Quantities for PCB's or lead. Notification should be made by the Site Manager or a Corporate Officer as soon as possible after discovery of a release (within 1 hour if possible) or no later than 4 hours after discovery of the release.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL RESPONSE CENTER
1-800-424-8802

VI. TRAINING PROGRAM

To ensure that this Operating and Contingency Plan is implemented properly, training/safety meetings shall be held on a routine basis as follows.

A. **New Employee Orientation:** Whenever a new employee is hired, the new employee shall be allowed 1 hour to familiarize himself with this plan. In addition, the Site Manager (ie., Steven Cohen) shall guide the new employee around the yard and explain the various operating and contingency requirements, including:

- Locations of waste and materials storage areas and proper handling and storage procedures relevant to new employee's responsibilities.

- Location of spill kit and proper procedure to respond to spills or releases of waste materials.

B. **Hazardous Materials Management**: The Site Manager shall provide on the job training to each employee involved in the management of the following materials:

- Baghouse dust
- Non-metallic fluff off of separated table

This training shall cover procedures for the following:

- Using, inspecting, repairing and replacing facility emergency and monitoring equipment;
- Shutdown of operations;
- Communications or alarm systems
- Response to fires or explosions

The following records shall be maintained at the facility:

- Job title and written description of job for each position at the facility related to management of the above materials and the name of the employee filling each job;

- Records that document that the relevant training and/or job experience has been provided to appropriate personnel

VII. STORAGE AND DISPOSAL OF WASTE

Three types of wastestreams are generated at this site:

- Wastes containing more than 50 mg/kg of PCBs (PCB wastes);
- Wastes containing more than 5 mg/l of lead as determined by a TCLP analysis (hazardous wastes); and
- Other process wastes that do not fall into the above categories (special wastes).

PCB wastes are regulated under 40 CFR Part 761. Hazardous wastes are regulated under 40 CFR Part 262 (State of Illinois regulations are 35 IAC Part 722). Special wastes are regulated under State of Illinois 35 IAC Part 808. The various waste types are shown in Table 1.

A. PCB WASTES:

Each container of PCB Waste and any larger containers or shelters in which individual containers are stored, such as the steel freight container currently used for the containers of baghouse dust shall have a PCB label conforming to the requirements shown in Appendix A. This label shall be placed so that it can be easily read by any person inspecting or servicing the marked items or areas. Each individual container shall also be marked with a unique number or identifier, its weight and the date upon which it was filled. The storage area shall be managed so that the containers can be located by the date they entered storage and shall be secured at all times (except when adding or removing material) by closing the doors.

TABLE 1

SUMMARY OF WASTE TYPES

Chicago International Exporting

CATEGORY	WASTE MATERIAL	PCB Waste	Hazardous Waste	Special Waste	Ongoing Testing Required	Disposal Within 90-180-270 Days	Disposal Within 1 Year
1	Baghouse Dust	X					X
2	Fluff Off of Air Table	X	X			X	
3	Floor and pavement sweepings IF sample exceeds 50 ppm of PCBs and 5 mg/l of TCLP lead.	X	X		X	X	
4	Floor and pavement sweepings IF sample exceeds 50 ppm of PCBs, but does not exceed 5 mg/l of TCLP lead.	X			X		X
5	Floor and pavement sweepings IF sample does not exceed 50 ppm of PCBs or 5 mg/l of TCLP lead.			X	X		X
6	Floor and pavement sweepings IF sample does not exceed 50 ppm of PCBs, but still exceeds 5 mg/l of TCLP lead.		X		X	X	

Disposal of PCB wastes shall be within one year after it was generated. Currently, disposal solid of PCB wastes is limited to either an incinerator or chemical waste landfill approved by the U.S. EPA pursuant to 40 CFR Part 761.70 and 40 CFR Part 761.75. However, currently proposed regulations may allow other disposal options in the future.

A manifest (EPA Form 8700-22) shall accompany each shipment of PCB wastes and one copy shall be retained at the time of shipment. Another copy of the manifest, which has been signed by the receiving facility, is supposed to be returned within 35 days and shall be saved as well. If the other copy signed by the receiving facility has not been returned within 35 days, the status of the shipment shall be determined. If the copy has not been received within 45 days, an Exception Report shall be filed with the U.S. EPA Regional Administrator. A Certificate of Disposal will be issued by the disposal facility within 30 days and shall be saved as well.

A written annual document log of the disposition of PCB's shall be prepared by July 1 for the previous calendar year (January-December.) All records shall be retained at the site for at least 3 years.

A1. **Baghouse Dust:** Baghouse dust is considered a PCB waste only. Baghouse dust may be directly discharged into the polyethylene lined fiber boxes (i.e., the Gaylord boxes). However, the boxes shall be protected from wet weather by placing a polyethylene bag over it while it is exposed to wet weather conditions. The PCB label shall be affixed on the box when it is first placed under the baghouse.

A2. **Separator (Air) Table Fluff:** Air table fluff is considered a PCB waste and a hazardous waste for TCLP lead. Air table fluff may be directly

discharged to a Gaylord box. However, the boxes shall be protected from wet weather.

A3. Floor and Pavement Sweepings: Floor and pavement sweepings may be considered a PCB Waste depending on sample and test results obtained by sampling each container (i.e., roll-off box) of sweepings as it is generated.

When a container of sweepings is filled, it shall be sampled and tested for PCBs (and TCLP lead as explained in Section VII.B.2.). Sample and test procedures are described in Section VIII. If the samples exceed 50 ppm of PCBs, it shall be considered a PCB waste. Representative sampling, and therefore, a PCB waste determination, cannot be conducted until a sufficient volume of material has accumulated (on the order of several cubic yards of about the volume of a roll-off box). Upon receipt of the test results that exceed 50 ppm of PCBs, the container shall be labeled appropriately and dated with the date that the test results are received.

All pavement and floor sweepings shall be stored in roll-off boxes (or an equivalent) and shall be covered at all times, except when adding or removing material.

B. HAZARDOUS WASTES

The container in which hazardous wastes are stored must be sturdy and weatherproof if left outside. The container into which the hazardous waste is directly discharged must be transferred to a designated storage area within three days after more than 55 gallons of waste (i.e., a drum) has accumulated in the container. The container must be labeled with the words HAZARDOUS WASTE and the date when more than 55 gallons of waste began accumulating and must

be closed at all times except when adding or removing fluff. A PCBs label (see Appendix A) must also be placed on the container if it is also a PCB waste.

The designated storage area may be a larger container, such as the freight container used for the boxes of baghouse dust or it may be a bulk container located elsewhere onsite or it may be a sheltered area or room. In any case, the designated storage area must be labeled with HAZARDOUS WASTE labels, (see Appendix A) and shall be marked with the date upon which accumulation in the storage area began. The storage area must be closed at all times except when adding or removing materials.

The containers shall be arranged in the storage area so that the labels are visible upon inspection of the area. Due to the type of hazards posed by this waste, an alarm system, telephone/2-way radio, portable fire extinguisher and water supply are not required. Similarly, arrangements with police, fire departments, hospitals and emergency response coordinators are not required. Contingency and emergency procedures for this material are provided in sections IV.E.5. and V.

If more than 2200 lbs of hazardous waste accumulates in a month, the accumulated waste must be disposed of within 90 days. Prior to disposing, each container must be marked with appropriate Department of Transportation labels, marks and placards specified under 49 CFR Part 172 (typically provided by the transporter).

If less than 2200 lbs of hazardous waste accumulate in a month, the accumulated waste must be disposed of within 180 days so long as no more than 13,200 lbs of waste is accumulated. If the waste must be transported over a distance of 200 miles or more, the waste may be accumulated for 270 days so long as no more than 13,200 lbs accumulates onsite.

With each shipment of waste, an EPA manifest (EPA Form 8700-22) shall be completed by a designated representative. A copy of the manifest shall be retained at the time of shipment. Another copy of the manifest, which has been signed by the receiving treatment/disposal facility, will be returned and shall be saved as well. Both copies of the manifest shall be retained for 3 years. If the receiving treatment/disposal facility does not return the manifest within 35 days, the transporter and treatment/disposal facility shall be contacted to determine the status of the waste. If a manifest has not been received within 45 days, an Exception Report shall be filed with the U.S. EPA Regional Administrator. A Biennial Report shall be filed by March 1 of each even numbered year.

In addition, since the hazardous wastes for TCLP lead are restricted wastes under 40 CFR Part 268, a written notice (ie., a form typically provided by the disposal facility) must by provided to the treatment/disposal facility with each shipment of waste indicating that the waste does not meet the applicable treatment standard (the disposal facility will have to stabilize the materials prior to placing it into the landfill). These records must be retained for 5 years.

As a restricted waste, each shipment must be treated to reduce the TCLP lead levels to below 5 mg/l before it can be land disposed. Land disposal must be in a disposal facility permitted to accept hazardous waste pursuant to 40 CFR Part 270 or the equivalent State program.

B1. <u>Separator (Air) Table Fluff</u>: Air table fluff is considered a hazardous waste for TCLP lead and a PCB waste. Air table fluff may be directly discharged to a Gaylord box. However, the boxes shall be protected from wet weather.

B2. Floor and Pavement Sweepings: Floor and pavement sweepings may also be considered a hazardous waste based on an exceedance of the TCLP lead standard, which is 5 mg/l. When a container of potentially hazardous waste sweepings is filled, it shall be sampled and tested for TCLP lead (and PCBs as further explained in Section VII A.2.). Sample and test procedures are described in Section VIII. If the samples exceed 5 mg/l of TCLP lead, it shall be considered a hazardous waste. If the samples also exceed 50 ppm of PCBs, it shall also be considered a PCB waste as further described in the previous section (Section VII.A.3.).

Due to the variability of the sweepings, a representative sample cannot be collected until a sufficient volume of material has accumulated, which will be on the order of several cubic yards or about the volume of a roll-off box. Therefore, a hazardous waste determination cannot be made until a representative sample of the sweepings can be collected. Once a hazardous waste determination is made, the container shall be labeled appropriately and the date of accumulation shall be considered the date on which test results from the lab are received.

All pavement and floor sweepings shall be stored in roll-off boxes (or an equivalent) and shall be covered at all times, except when adding or removing material.

C. Special Wastes

Any industrial process waste or pollution control waste that is not considered a PCB or hazardous waste shall be considered a non-hazardous special waste. Such waste may include the floor and pavement sweepings if sample test results do not exceed 50 ppm of PCBs or 5 mg/l of TCLP lead.

Disposal of special wastes shall be at a landfill or other disposal facility permitted by the Illinois EPA to accept special non-hazardous waste pursuant to 35 IAC Part 807. Transportation of the waste shall be by a special waste hauler licensed pursuant to 35 IAC Part 809.

A manifest meeting the requirements of 35 IAC Part 809.501 (provided by the hauler) shall accompany each shipment of waste. The top copy shall be saved as well as the bottom copy that is returned by the final receiving facility at the end of the month. All records shall be retained for 3 years.

For wastes containing detectable levels of PCBs (though less than 50 ppm of PCBs), a copy of the manifest shall be submitted to the IEPA in Springfield. Copies of manifests of special waste not containing PCBs do not need to be submitted to the Agency.

VIII. WASTE SAMPLING PROCEDURES

Based on current regulations and site operations, the following materials have already been adequately sampled and tested:

- baghouse dust
- air table fluff
- scrap copper
- scrap steel

The results of the testing will be provided in a separate report. If any of the processes or input materials change, the processed and waste materials shall be resampled and tested accordingly by the same procedures described in the separate report.

Copper fines will require one year of quarterly sampling. Based on the first 3 rounds of sampling already completed, statistical analyses indicate that the copper fines are not a PCB waste. However, 1 of the 3 samples already collected exceeded 50 ppm of PCBs so ongoing sampling over the course of a year will be required to determine with more confidence as to whether the copper fines exceed 50 ppm of PCB over the long term.

Until ongoing statistical testing demonstrates that the copper fines exceed 50 ppm of PCB, the copper fines can be stockpiled on pavement. One composite sample shall be collected on a quarterly basis from the stockpile of copper fines using the sampling methodology illustrated on page 16 of the USEPA Sampling Guidance for Scrap Metal Shredders: Field Manual (August 1993), which is contained in Appendix D. An 8 oz scoop of material can be substituted in the described methodology for the one gallon bucket.

The composite sample shall be analyzed for PCBs using EPA Method 8080.

Upon receipt of each test result, the "Hypothesis Testing for Monitoring Programs" shall be applied to all test results obtained to date. The Hypothesis Testing for Monitoring Programs is fully described on page A-4 of the USEPA Sampling Guidance for Scrap Metal Shredders: Field Manual (Appendix D).

Floor and pavement sweepings will also require ongoing sampling and testing for at least 3 rounds. Due to the highly variable and large volume of these waste types, a fairly large volume will have to be accumulated before a representative sample can be obtained. For reasons of practicality, the volume of a roll-off box (8-12 cubic yards) shall be considered sufficient volume. The roll-off box shall be sampled as follows:

- At each of 3 equally spaced points along the centerline of the roll-off box, collect an approximately 1-quart sized sample from the surface, at mid-depth and from the bottom of the box. Combine all 9 samples into a properly cleaned container (e.g., a plastic bucket cleaned in a solution of trisodium phosphate and water followed by a tap water rinse).

- Spread the combined samples onto a clean surface (e.g., new polyethylene sheeting) and thoroughly mix the samples by hand (use clean impermeable gloves).

- Fill a laboratory-decontaminated 8 or 16 oz. jar with the material and label appropriately.

Each sample shall be tested as follows:

- PCBs by EPA Method 8080
- TCLP Lead by EPA Method 6010

Turns out to be only one sample

must have 3 samples
Composite of each surface, mid and bottom of the 3 equally spaced points

Upon receipt of each test result, the Hypothesis Testing for Monitoring Programs shall be applied to all test results obtained to date (see page A-4, Appendix D).

Records of all test results shall be maintained at the site for at least 3 years.

APPENDIX A

LARGE PCB LABEL

Label shall be as shown below. Letters and striping shall be on a yellow or white background and shall be sufficiently durable to equal or exceed the life (including storage for disposal) of the PCB container. The size of the label shall be at least 6 inches on each side.

HAZARDOUS WASTE LABEL

Hazardous Waste Containers shall be marked with the following information. The information must be displayed on a background of sharply contrasting color, must be unobscured by labels or attachments and must be located away from any other marking, such as advertising, that could substantially reduce its effectiveness. Labels containing this information are commercially available.

When offered for transportation to a disposal facility, each container shall also be marked and labeled in accordance with Department of Transportation regulations (49 CFR Part 172). Although most transporters licensed to haul this material provide the proper labels, it is still the responsibility of Chicago International Exporting to ensure that the waste containers have all required labels and markings.

HAZARDOUS WASTE

Federal law prohibits improper disposal.
If found, contact the nearest police or public safety authority
or the U. S. Environmental Protection Agency.

Chicago International Exporting
4020 S. Wentworth Avenue
Chicago, Illinois

Manifest Document No. _____

APPENDIX B

Potential Inhalation Exposure to PCBs and Lead

Potential Inhalation Exposure to PCBs and Lead

Worst case exposure is best represented by assuming *very high* airborne concentrations of baghouse dust. The baghouse dust contains the highest concentrations of PCBs and lead of all the materials processed onsite. Any dust generated by the shredder or chopper processes, even if not captured by the baghouse, is presumed to have comparable concentrations of PCBs and lead as was measured in the baghouse dust itself. Material Safety Data Sheets (MSDSs) for PCBs and lead are provided behind these calculations.

PCBs

Highest concentration of PCBs detected in the baghouse dust during summer 1995 was 283 mg/kg. To evaluate worst case exposure, we will assume a concentration of 1000 mg/kg, which is 3-4 times the highest detected concentration during the sampling of summer 1995.

1000 mg/kg (milligrams of PCBs per kilogram of dust)

Highest concentration of dust in air representing *extremely* dusty conditions. It should be noted that the following level of dust in the air is not likely to be encountered at this site. It should also be noted that OSHA's standard for nuisance dust is 15 mg/m^3:

50 mg/m^3 = 0.00005 kg of dust per cubic meter of air

(1000 mg/kg) x (0.00005 kg/m^3) = 0.05 mg of $PCBs/m^3$ or air

This result is 10 times less than OSHA's Permissible Exposure Limit of 0.5 mg/m^3.

Lead

Highest concentration of lead detected in the baghouse dust was 1500 ug/g. To evaluate worst case exposure, we will assume a concentration of 5000 ug/g of lead, which is 3-4 times the detected concentrations.

5000 ug/g (micrograms of lead per *** gram of dust)

Highest concentration of dust in air representing extremely dusty conditions. It should be noted that the following level of dust in the air is not likely to be encountered at this site. It should also be noted that OSHA's standard for nuisance dust is 15 mg/m^3:

50 mg/m^3 = 0.05 g of dust per cubic meter of air

(5000 ug/g) x (0.05 g/m^3) = 250 ug of lead/m^3 of air

This result indicates that, under unusually dust conditions, it may be possible to exceed OSHA's Permissible Exposure Limit of 50 ug/m^3 of lead dust in air.

APPENDIX C

Material Safety Data Sheets:

PCBs

Lead

APPENDIX D

Sampling Guidance for Scrap Metal Shredders: Field Manual

United States
Environmental Protection
Agency

Office of Prevention, Pesticides
and Toxic Substances
Washington, DC 20460

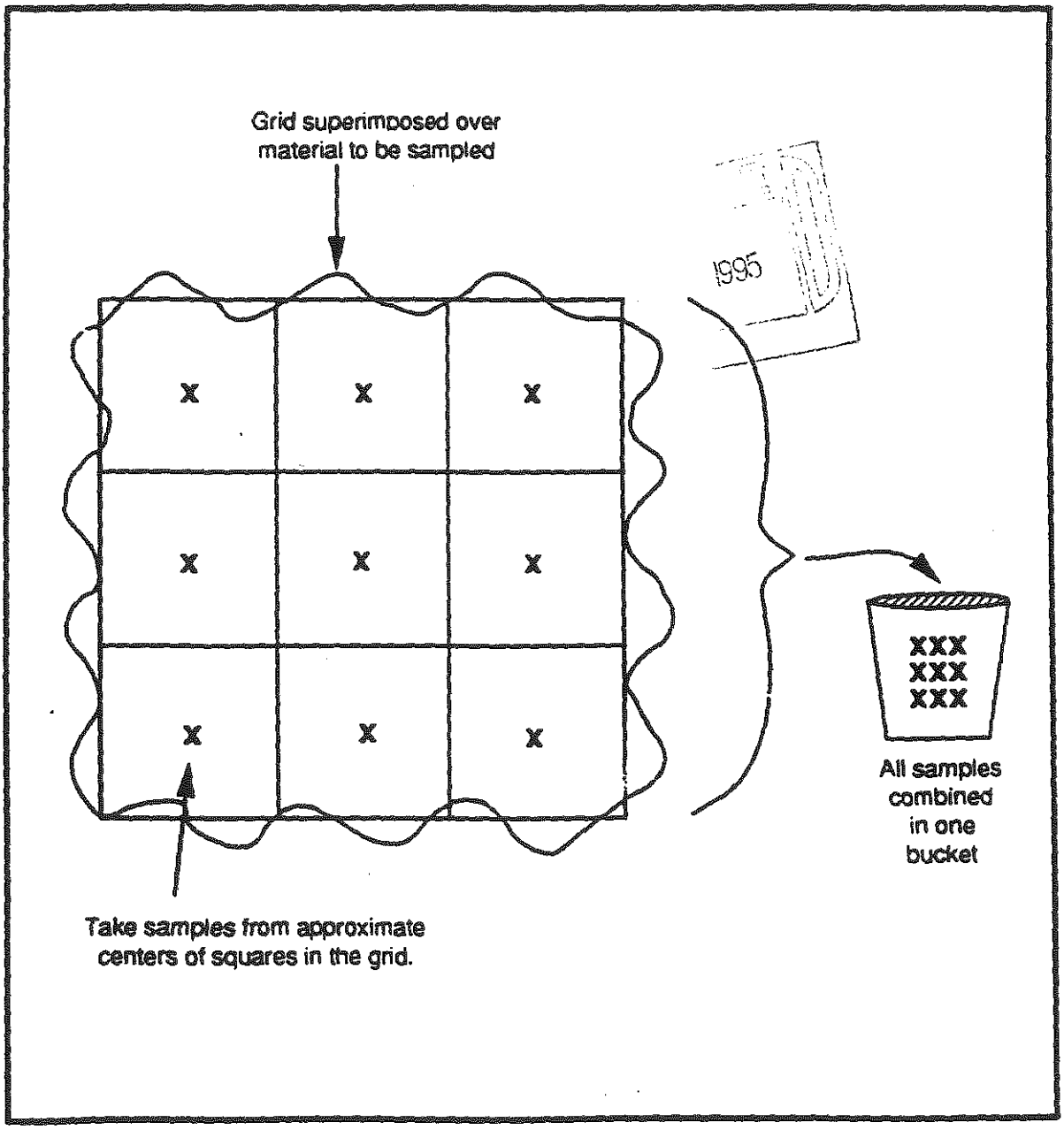
EPA 747-R-93-009
August 1993

Office of Prevention, Pesticides, and Toxic Substances

EPA

SAMPLING GUIDANCE FOR SCRAP METAL SHREDDERS

Field Manual



SAMPLING GUIDANCE FOR SCRAP METAL SHREDDERS

Field Manual

August 1993

United States Environmental Protection Agency
Office of Prevention, Pesticides
and Toxic Substances
Washington, DC 20460

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Acknowledgments

The Office of Pollution Prevention and Toxics wishes to thank everyone involved with this project at Westat and at the Evironmental Protection Agency, as well as others that have contributed to the document.

In particular, we acknowledge the technical help of John Rogers and William Devlin of Westat in preparing this document. Mary Lou Pieranunzi, Angelia Murphy, Maida Montes and Anna Page also helped to prepare and proof-read the manuscript.

We are grateful to the many reviewers in the Office of Pollution Prevention and Toxics and in other branches of the Environmental Protection Agency for reading the document. In particular, we thank Brad Schultz and Dan Reinhart of the Exposure Evaluation Division.

We owe special thanks to Mitchell D. Erickson of Argonne National Laboratory, David N. Speis of Environmental Testing and Certification Corporation, and Herschel Cutler of the Institute of Scrap Recycling Industries for reviewing this document and contributing many useful comments about it. Their review does not constitute approval.

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1. INTRODUCTION

Purpose of this Document. The purpose of this document is to provide basic instructions for collecting and statistically analyzing samples of materials that are produced as a result of shredding automobiles, refrigerators, washing machines, and other metal objects. Shredders constitute an important component of this country's environmental management program, annually recycling 6-9 million cars, 19 million appliances, and 10 million tons of scrap metal. Unfortunately, the by-products of these recycling operations may, in some cases, contain significant concentrations of polychlorinated biphenyl's (PCBs) or other toxic substances, notably lead and cadmium. As a result, communities, environmental agencies, and shredder operators have expressed concern over the possibility of contamination in waste products generated at shredder sites and have indicated a need for guidance in assessing the presence of toxic substances in these materials.

Previous Studies. Several States have done exploratory studies of shredder sites. Analysis of approximately 200 samples of waste materials collected at shredder sites have revealed concentrations of PCBs ranging from 0 to 1,242 parts per million (ppm).

Based on concerns raised by these studies, the U.S. Environmental Protection Agency (USEPA) has gathered samples of various waste materials at seven shredder sites distributed across the United States.[1] In this study, analysis of samples of PCBs revealed concentrations ranging as high as 870 ppm. The same study found concentrations of lead and cadmium ranging as high as 43,000 ppm and 200 ppm, respectively. Information from these prior studies, particularly the one done by the USEPA, has been used in developing the sampling methods discussed in this document.

Shredder Output Streams. Shredders are very large machines that convert autos, truck bodies and other light gauge metal objects into fist size or smaller pieces of scrap metal.[2] A typical shredder operation is depicted schematically in Figure 1. The actual "shredding"

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[1] *PCB, Lead, and Cadmium Levels in Shredder Waste Materials: A Pilot Study*. USEPA, Office of Toxic Substances. EPA 560/5-90-008B. 1991.

[2] The technical background for this section is based on material taken from *PCB, Lead, and Cadmium Levels in Shredder Waste Materials: A Pilot Study*, ibid.; on Chapters 1 and 2 of *Analytical Chemistry of PCBs*, by Mitchell D. Erickson, Butterworth Publishers, 1986; and on conversations with shredder operators and environmental consultants specializing in scrap metal recycling.

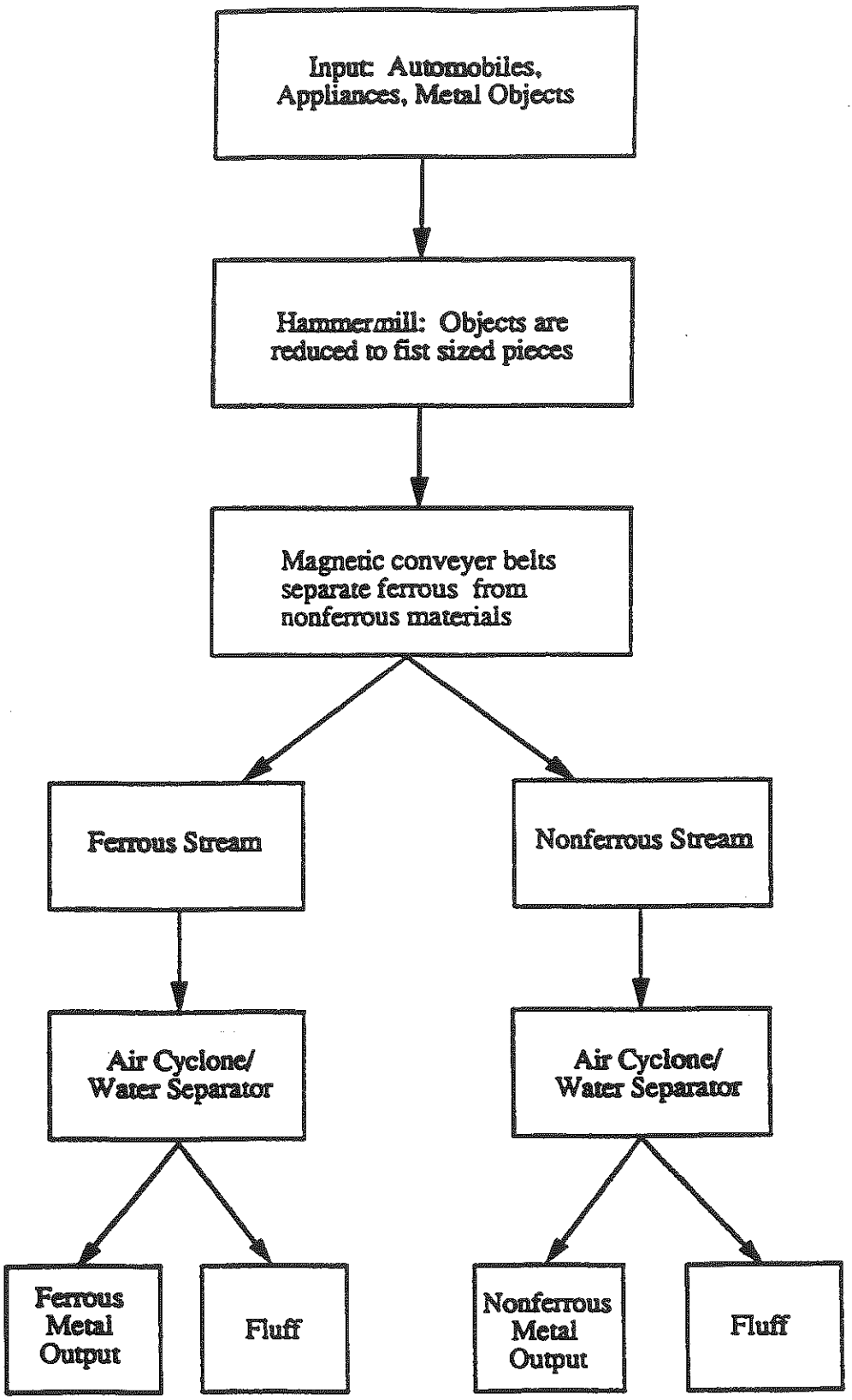

Figure 1. Schematic illustration of shredder process

is accomplished by a large hammer mill, after which the resulting output is sorted into three main output streams:

- Ferrous metals,
- Nonferrous metals, and
- Fluff.

Fluff is extremely heterogeneous. While it consists largely of plastic and foam, it may also contain pieces of metal, rubber, fabric, wire, and other materials. In general, it has a fibrous, "fluffy" appearance, at least when viewed from a distance. The initial separation into ferrous and nonferrous materials is carried out using magnetic devices. After this step, metal and fluff are separated using either air cyclone or water separation processes. In addition, nonferrous metals are often subjected to some hand-sorting as well. Both ferrous and nonferrous metals are recycled, while fluff is typically deposited in landfills.

It should be noted that this is a description of a "typical" shredder, but there are many types of shredders and the instructions in this document may have to be adapted for special circumstances at a given location.

How PCBs Enter Output Streams. PCBs enter output streams when materials containing PCB-bearing fluids are shredded. PCB-bearing fluids have been used in the construction of capacitors, transformers, electric motors, air conditioners, and hydraulic devices. PCBs have also been used as additives in pesticides, paints, sealants, and plastics.

The materials processed at shredder sites may be roughly categorized as follows:

- Motor vehicles, including passenger cars, light trucks, vans and small school buses: In such vehicles, PCBs may be found in paint, hydraulic fluids, oil capacitors, plastic materials, and in oily dust accumulated from roads.

- Appliances, including refrigerators, washers, dryers, dishwashers, freezers, ranges, air-conditioners, microwaves, and hot water heaters: These materials are generally called "white goods." In white goods, PCBs may be found in capacitors and electric motors.

- Other materials, such as scrap metals, or industrial or office equipment: PCBs might be found in oil-filled capacitors, plastics, paints, and adhesives.

When objects containing PCB-bearing fluids are shredded, the fluids are dispersed and may be absorbed by the fluff, or the fluids may coat metal and plastic objects. Similarly, when plastics or painted objects are shredded, PCBs in particulate form may enter the fluff output stream. In any case, the concentration of PCBs in (or on) materials produced at shredder sites may pose an unreasonable risk to health or the environment.

PCBs have been regulated by the Toxic Substances Control Act (TSCA) since 1976. According to these regulations, materials that contain PCBs in a concentration of 50 ppm or more must be disposed of in a chemical waste landfill, boiler or incinerator approved under TSCA. EPA has determined that fluff is regulated under TSCA, 40 C.F.R, Part 761. The U.S. Shredding Industry produces approximately three million tons of fluff a year. If widespread contamination were found and the materials were deposited in TSCA landfills, the demand for these landfills could exceed their capacity due to the volume of fluff.

Where to Look for PCBs and Other Toxic Substances. Very little is known about the volume and distribution of PCBs at shredder sites. It is generally suspected that PCBs are much more likely to enter output streams when processing white goods than motor vehicles because of the higher prevalence of electric motors in the former. Because of this, many operators refuse to process white goods, while others accept them only if the motors have been removed. Those operators that do process white goods typically "mix" them with motor vehicles, usually at a rate of about 10% or less white goods (by weight).

When PCBs are present at a given site, it is generally expected that they would be found in fluff because of its absorbent nature. While metal output may be coated with PCB-bearing fluids, it seems unlikely that the coating would contain enough PCBs to constitute a health hazard. PCBs may be present in the soil at shredder sites, particularly in locations where fluff accumulates or is moved for storage. However, it must be stressed that very little is known about levels of PCBs at shredder sites and the possible contamination of materials produced by shredders.

Even less is known about other toxic substances that may be present at shredder sites. Lead and cadmium may enter output streams from paint and metal plating on component parts in motor vehicles. Unlike PCBs, lead and cadmium are not typically suspended in fluids, but they might adhere to particles of fluff as materials are shredded.