

Appendix C

References/Pollution Prevention Opportunity Assessments

ENVIRONMENTAL PROTECTION AGENCY GUIDANCE

General Guidance

Waste Minimization Opportunity Assessment manual, EPA/625/7-88/003, 1988.
Facility Pollution Prevention Guide, EPA/600/R-92/088, 1992.
Pollution Prevention in the Federal Government: Guide for Developing Pollution Prevention Strategies for Executive Order 12856 and Beyond, EPA/300/B-94/007, 1994.
Pollution Prevention and Right-to-Know in the Government: Executive Order 12856, EPA/100/K-93/001, 1993.
Setting Priorities for Hazardous Waste Minimization, EPA/530/R-94/015, 1994.
A Primer for Financial Analysis of Pollution Prevention Projects, EPA/600/R-93/059, 1993.
Pollution Prevention Act of 1990, Public Law 101-508, 1990.

Industry-Specific Guidance

These guides list source-reduction and recycling techniques for specific industries. The guides have been published by the Pollution Prevention Research Branch of EPA's Office of Research and Development as a series of industry-specific pollution prevention guidance manuals.

Industrial Category	EPA Document No.	Date
<i>Automotive Refinishing Industry</i>	<i>EPA/625/7-91/016</i>	<i>10/91</i>
<i>Auto Repair Industry</i>	<i>EPA/625/7-91/013</i>	<i>10/91</i>
<i>Fiberglass Reinforced and Composite Plastics</i>	<i>EPA/625/7-91/014</i>	<i>1991</i>
<i>Mechanical Equipment Repair Industry</i>	<i>EPA/625/R-92/008</i>	<i>1992</i>
<i>Metal Finishing Industry</i>	<i>EPA/625/R-92/011</i>	<i>1992</i>

Fact Sheets

The following fact sheets contain overviews, tips, or guidelines for pollution prevention. Some provide only general information or advice on how to set up programs; others identify pollution prevention opportunities for specific industries, processes, or materials. EPA, state agencies, and local governments produced the fact sheets. In many cases, multiple sources have published fact sheets on particular topics. Fact sheets on the topic areas below are available from the EPA library, 401 M Street, SW, Washington DC 20460 (202/260-1963). The source of this information is *Pollution Prevention Resources and Training Opportunities in 1992*, EPA, Office of Pollution Prevention and Toxics and Office of Environmental Engineering and Technology Demonstration, EPA/5650/8-92-002, January 1992.

FACT SHEETS

General and Introductory Information

Conservation Tips for Business
General Guidelines
Getting More Use Out of What We Have
Glossary of Waste Reduction Terms
Guides to Pollution Prevention
Hazardous Waste Minimization
How Business Organizations Can Help
Local Governments and Pollution Prevention
Pollution Prevention (General)
Pollution Prevention Fees
Pollution Prevention Training and Education
Pollution Prevention Through Waste Reduction
Recent Publications
Reduce Hazardous Waste
Reuse Strategies for Local Government
Source Reduction Techniques for Local Government
U.S. EPA's Pollution Prevention Program
Waste Exchanges: Everybody Wins!
Waste Exchange Services
Waste Minimization Fact Sheet
Waste Minimization in the Workplace
Waste Reduction Can Work For You
Waste Reduction Overview
Waste Reduction/Pollution Prevention: Getting Started
Waste Reduction Tips for All Businesses
Waste Source Reduction
Waste Source Reduction Checklist
What is Pollution Prevention?
Why Reduce Waste?

Legislative Information/EPA and State Initiatives

EPA's 2% Set Aside Pollution Prevention Projects
EPA's "List of Lists" Projects
EPA's Pollution Prevention Enforcement Settlement Policy
EPA's Pollution Prevention Incentives for States
EPA's Pollution Prevention Strategy
New Form R Reporting Requirements
Oregon's Toxic Use Reduction Act
Pollution Prevention Act of 1990

Setting Up A Program

1991 Small Business Pollution Prevention Grants
An Organization Strategy for Pollution Prevention
Considerations in Selecting a Still for Onsite Recycling
Pollution Prevention Grant Program Summaries and Reports
Procuring Recycled Products
Recycling Market Development Program
Selecting a Supplier, Hauler, and Materials Broker
Solid Waste Management Financial Assistance Program
Source Reduction at Your Facility
Starting Your Own Waste Reduction Program
The Alexander Motor's Success Story
The Eastside Plating Success Story
The Wacker Payoff
Waste Reduction Checklists

- General*
- Cleaning*
- Coating/Painting*
- Formulating*
- Machining*
- Operating Procedures*
- Plating/Metal Finishing*

Waste Source Reduction: Implementing a Program

Process/Material Specific

Aerosol Containers
Aircraft Rinsewater Disposal
Acids/Bases
Chemigation Practices to Prevent Groundwater Contamination
Corrugated Cardboard Waste Reduction
Demolition
Empty Containers
Gunwasher Maintenance
Lead Acid Batteries
Machine Coolants:

- Prolonging Coolant Life*
- Waste Reduction*

Metal Recovery:

- Dragout Reduction*
- Ion Exchange/Electrolytic Recovery*
- Etchant Substitution*

Old Paints, Inks, Residuals, and Related Materials
Pesticides:

- Disposal of Unused Pesticides, Tank Mixes, and Rinsewater*
- In-Filled Sprayer Rinse System to Reduce Pesticide Wastes*
- Pesticide Container Disposal*

Preventing Pesticide Pollution of Surface and Groundwater
Preventing Well Contamination by Pesticides
Protecting Mountain Springs from Pesticide contamination
Reducing and Saving Money Using Integrated Pest Management

Metals Recycling

Office Paper Waste Reduction

Plastics:

The Facts About Production, Use, and Disposal

The Facts on Degradable Plastics

The Facts on Recycling Plastics

The Facts on Source Reduction

Printing Equipment

Refrigerant Reclamation Equipment/Services

Reverse Osmosis

Safety Kleen, Inc. Users

Shop Rags from Printers

Small Silver Recovery Units

Solvents:

Alternatives to CFC-113 Used in the Cleaning of Electronic Circuit Boards

Onsite Solvent Reclamation

Reducing Shingle Waste at a Manufacturing Facility

Reducing Solvent Emissions from Vapor Degreasers

Small Solvent Recovery Systems

Solvent Loss Control

Solvent Management: Fiber Production Plant

Solvent Reuse: Technical Institute

Trichloroethylene and Stoddard Solvent Reduction Alternatives

Solvent Recovery: Fiber Production Plant

Solvent Reduction in Metal Parts Cleaning

Ultrafiltration

Used Containers: Management

Used Oil Recycling

Waste Management Guidance for Oil Cleanup

Water and Chemical Reduction for Cooling Towers

Waste Water Treatment Opportunities

Industry-Specific

Auto Body Shops

Automotive Painting

Automotive/Vehicle repair Shops

Asbestos Handling, Transport, and Disposal

Machine Toolers

Metal Finishers:

General

Effluent Minimization

Rinsewater Reduction

U.S. ARMY GUIDANCE

General Assistance

U.S. Army Construction Engineering Research Laboratory. P.O. Box 4005, Champaign, IL, 61820. 800-USA-CERL

U.S. Army Cold Regions Research and Engineering Laboratory (CERCL), Hanover, NH 03755-1290. 603-646-4200, DSN 684-4200

U.S. Army Environmental Hygiene Agency. Aberdeen Proving Ground, MD, 21010. (301) 671-3651 or DSN 584-3651.

U.S. Army Environmental Office. The Pentagon, Washington, DC, 20310-2600, (703) 693-5032 or DSN 223-5032.

U.S. Army Environmental Center (formerly the U.S. Army Toxic and Hazardous Materials Agency). Aberdeen Proving Ground, MD, 21010. 800-USA-EVHL, (301) 671-2427 or DSN 584-2427.

U.S. Army Environmental Policy Institute. Champaign, IL, 61820. (217) 373-3320.

Pollution Prevention

U.S. Army Environmental Center (formerly the U.S. Army Toxic and Hazardous Material Agency). Environmental Compliance Division. (301) 671-2427 or DSN 584-2427.

Recycling

U.S. Army Engineering and Housing Support Center (USAEHSC). Directorate of Public Works. (703) 704-1606/1601.

Defense Logistics Agency. Check local Defense Reutilization and Marketing Organization (DRMO) Fort Lewis WA.

Air Pollution

U.S. Army Environmental Hygiene Agency. Air Pollution Engineering Division. Air Pollution Source Management (301) 671-3500 or DSN 584-3500; or Ambient Air Quality Management (301) 671-3954 or DSN 584-3954.

U.S. Army Environmental Center. Environmental Compliance Division. (301) 671-2427 or DSN 584-2427.

CFCs and Halon

U.S. Army Environmental Office. The Pentagon, Washington, DC 20310-2600, (703) 693-5032 or DSN 223-5032.

U.S. Army Environmental Center. Environmental Compliance Division. (301) 671-2427 or DSN 584-2427.

Endangered Threatened Species, Natural Resources

U.S. Army Environmental Center. Natural and Cultural Resource Division (703) 355-7968 or DSN 345-7968.

U.S. Army Engineering Waterways Experiment Station (CEWES), Vicksburg, MS 39180-6199, (601) 634-2512, FTS 542-2513.

Hazardous and Toxic Waste and Material Management

U.S. Army Environmental Center. Environmental Compliance Division. (301) 671-2427 or DSN 584-2427.

U.S. Army Environmental Hygiene Agency. Waste Disposal Engineering Division. (301) 671-3651 or DSN 584-3651.

Environmental Protection Agency-RCRA/Superfund Hotline. (800) 424-9346.

Environmental Protection Agency-TSCA Hotline. (202) 554-1404.

Hazardous Waste Minimization

U.S. Army Environmental Center. Environmental Compliance Division. Army HAZMIN Program. (301) 671-2427 or DSN 584-2427

U.S. Army Environmental Hygiene Agency. Waste Disposal Engineering Division, (301) 671-3651 or DSN 584-3651.

Solid Waste Management

U.S. Army Environmental Hygiene Agency. Ground Water and Solid Waste Management. (301) 671-2024.

U.S. Army Environmental Center. Environmental Compliance Division. (301) 671-2427 or DSN 584-2427.

General Environmental/Pollution Prevention

National Defense Center for Environmental Excellence. 1415 Scalp Avenue, Johnstown, PA 15904. (814) 269-2432

Air Force Center for Environmental Excellence, Pollution Prevention Division, Brooks Air Force Base, TX 78235-5318. (210) 526-4214, DSN 240-4214.

Navy Energy and Environmental Support Agency (NEESA). Port Hueneme, CA (805) 982-4897.

Annapolis Detachment of the Carderock Division, Naval Surface Warfare Center, Environmental Protection Branch, Craig Alig, Director, (410) 267-3526, DSN 281-3526.

Publications

- U.S. Army Environmental Strategy into the 21st Century, 1992.
- U.S. Army Engineering and Housing Support Center, *Installation Recycling Guide*, 1991.
- U.S. Army Environmental Hygiene Agency, *A Commander's Guide to Infectious Waste Management at Army Health Care Facilities*, 1990.
- U.S. Army Environmental Hygiene Agency, *A Commander's Guide to Hazardous Waste Minimization at Army Health Care Facilities*, 1990.
- U.S. Army Corps of Engineers, *A Commander's Guide to Environmental Management*, 1990.
- U.S. Army Corps of Engineers, *Hazardous Waste Management Systems Study*, 1991.
- U.S. Army Environmental Center, *The Environmental Update*, published quarterly.
- Army Environmental Policy Institutes, *Army Pollution Prevention Plan Manual: A Guide for Army Installation*, 1993.
- Environmental Health Engineering Directorate. *U.S. Army Center for Health Promotion and Preventive Medicine Pollution Prevention Opportunity Assessment Protocol*, 1994.

Pollution Prevention Opportunity Assessments**ELECTROPLATING AND METAL FINISHING**

- Electrodialysis for Anodizing Bath Solutions
- Electroless Nickel Bath Life Extension
- High Velocity OXY-Fuel Thermal Spray
- Non-Cyanide Nickel Strippers
- Surface Coating by Physical Vapor Deposition
- Sulfuric/Boric Acid Anodizing

HAZARDOUS MATERIALS/WASTE MANAGEMENT

- Hazardous Material Affirmative Procurement Policies/Procedures
- Hazardous Material Shelf Life Management
- Waste Analysis Plan
- Hazardous Materials Shelf Life Optimization
- Hazardous Waste Container Labeling, Storage, and Transportation
- hazardous Material/Hazardous Waste Management
- Printed Circuit Board Recycling
- Recycling Photo/X-Ray Processing and Printing Wastes
- Software to Evaluate the Profitability of Pollution Prevention Investments using the Method of "Total Cost Assessment"
- Spill Prevention Techniques

OZONE DEPLETING SUBSTANCES

- Numbering System for CFCs, HCFCs, and Halons
- R-502 Alternative

Purchase Restrictions on CFC-containing Appliances
 Aerosol Can Puncturing and Crushing
 Non-chlorofluorocarbon Alternatives for Air Conditioning and Refrigeration
 Alternatives to CFC-12 Tracer Gas for Leak Detection
 Aerosol Cooling Spray Substitutes for CFC-12 and HCFC-22
 Halon 1211 Replacements
 Halon 1301 Replacements
 Halon Redistribution/Recovery/Recycling/Reclamation
 ODS-free Portable Hand-Held Fire Extinguishers
 Refrigerant Tracking Software
 Restrictions on the use of Hydrofluorocarbons
 Recovery/Recycling of CFC-12 and CFC-134a
 ODS-free Corrosion Inhibitors/Moisture Displacers
 ODS-free Cooling/Freezing Product
 ODS-free Leak Detector for Fuel Cells
 ODS-free Substitute for General Purpose Aerosol Lubricant
 ODS-free Aircraft Components Cleaning – Overview
 R-5000 series Refrigerants – Overview
 Refrigerant Recovery/Recycling/Reclamation
 U.S. EPA's Significant New Alternatives Program (SNAP)
 ODS-free Drinking Fountains
 ODS-free Non-flammable Contact Cement ODS-free Product Substitute for Adhesive EA 9446
 ODS-free Computer Keyboard Duster Products
 ODS-free Substitute for Ink Cleaner
 ODS-free Liquid Carburetor Cleaner
 ODS-free Tubeless Tire Repair Kit
 ODS-free Lubricant/Anti-seizing Compound
 ODS-free Degreasing/Cleaning
 Motor Vehicle Air Conditioning Refrigerant Conversion from CFC 12 to HFC-134a
 Motor Vehicle Air Conditioning Refrigerant Alternatives
 ODS-free Sterilization
 Ethylene Oxide Sterilizer Alarm Systems
 ODS-free Skin Refrigerant
 ODS-free Substitute for Insulating foam
 Fire Stop Setting Compounds

PAINTING

Dry Filter Paint Booth
 Electrostatic Paint spray System
 High Transfer Efficiency Paint Spray Systems
 Plural Component Proportioning System for Epoxy Paints
 Powder Coating Painting System
 Unicoat Paint Technology
 Waterborne Paint

DEPAINTING

Automatic Paint Gun Washer
Paint Stripping using Sodium Bicarbonate Medium
Carbon Dioxide Blasting Operations
Fluidized Bed Paint Stripper
High and Medium Pressure Water Paint Stripping Processes
Plastic Media Blasting (PMB) Paint Stripping
Degreasing and Paint Stripping using Sponge Blasting
Paint Stripping using Wheat Starch Blasting

PETROLEUM, OIL, AND LUBRICANTS

Used Oil Segregation and Storage
On-Site Recycling of Used Oil
Off-Site Recycling of Petroleum Base Hydraulic Fluid
Off-site Heat Recovery of Waste POL
Substituting Synthetic Oil for Conventional Oil
Permanent Filter for Vehicle Motor Oil
Bypass Filter for Vehicle Motor Oil
Oil Filter Crushing
Lubricant Analysis Programs
Substitute Lubricants (Non-Lead, Non-Ozone Depleting Substances)
Extension of Metal Working Fluid Service Life
Semi-synthetic and Synthetic Coolant Substitution
Antifreeze Recycling (On-site and Off-site)
Substitution and Recycling of Aircraft Deicing Products

SOLID WASTE MANAGEMENT

Corrugated Cardboard
Aluminum Cans
Steel Cans
Glass
Metal and Plastic Drums
Fluorescent Light Tubes and High Intensity Discharge Lamps
Diapers
Clothing and Household Items
Food Waste
Construction and Demolition Waste
Collection Containers
Recycling Trailers
Balers
Aerosol Can Puncturing and Crushing
Glass Pulverizers
Metal Drum Crushers
Concrete/Asphalt Crushers
Backyard and Small Scale Composting

Windrow Composting
 Aerated Static Pile Composting
 In-Vessel Composting
 Vermicomposting
 Tub Grinders
 Paper Shredders
 Trommel Screens
 Compost Mixers
 Front-end Loader
 Windrow Turners

SOLVENT ALTERNATIVES

Cleaning and Degreasing
 Paint Removal
 Rust, Corrosion, and Heat Scale Removal
 Carbon and Carbonaceous Deposit Removal
 General Metal Cleaning
 Emulsifier for cleaning bilges
 Electronic and Electrical Equipment Cleaning
 Fiberglass Surface Preparation and Epoxy Resin Cleaning
 Surface Preparation – Welding and Painting
 General Surface Preparation
 Paint Removal and Painting Clean up
 Rust Stain Removal
 Flight Deck Cleaner
 Corrosion Removal – Potable and Non-Potable Systems
 Engine Degreasing
 Surface Preparation Prior to Painting/Bonding/Adhesive
 Ink Removal
 Automotive – General Applications
 Cleaning Prior to Sealing
 Aircraft – Skydrol Removal
 General Aircraft Cleaning
 Corrosion Inhibitors
 Chemical Cleaning as a Solvent Alternative
 Immersion soaking
 EPA's Solvent Alternatives Guide – SAGE 2.1
 Solvent Recycling
 The Clean-In-Place (CIP) Method to Reduce Hazardous Waste
 Steam Cleaning as a solvent Alternative
 Mechanical Cleaning Processes as a Solvent Alternative

WASTEWATER

Bilge and Oily Wastewater Treatment System (BOWTS)

Biological Aqueous Wastewater Treatment System
Recycling Wash Water Using Closed Loop Wash Racks
Electrolytic Recovery Technology for Silver Cyanide Recycling
Hydroblasting Wastewater Recycling System
Laser Reduction of Toxic Organic Compounds in Wastewater
Peroxide Advanced Oxidation Wastewater Treatment
Powdered Activated Carbon Wastewater Treatment
Precipitation and Microfiltration Wastewater Treatment Systems
Recycling Activated Carbon
Reverse Osmosis and Ultrafiltration Wastewater Treatment Process
Secondary Use of Acids and Alkalis for Wastewater Treatment

STORM WATER

Infiltration Trenches for Treating Storm Water Runoff
Sand Filters for Treating Storm Water Runoff
Vortex Solids Separators for Treating Storm Water runoff
Water Quality Inlets to Control Storm Water Runoff
Wet Detention Ponds to Treat Storm Water Runoff